

1-10-16-10M

—PRESENTED TO—

S.2.A.

The New York Academy of Medicine

By The Publisher.

ILLINOIS MEDICAL JOURNAL

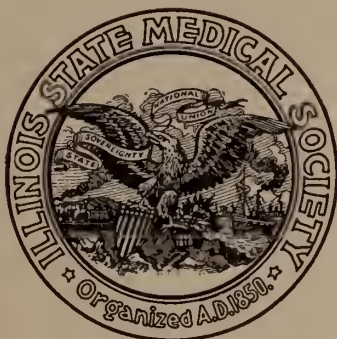
THE OFFICIAL ORGAN OF

The Illinois State Medical Society

PUBLISHED AT CHICAGO, ILL.

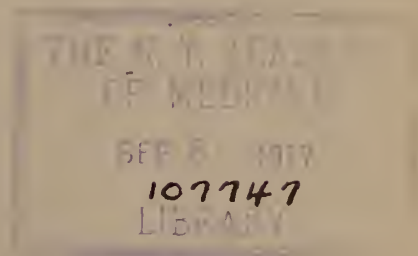
CLYDE D. PENCE, M. D., Editor

HENRY G. OHLS, M. D., Managing Editor



INDEX TO VOLUME XXXI

JANUARY TO JUNE, 1917



INDEX TO VOLUME XXXI

January to June, 1917

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers, are also included. Details of society proceedings, including the names

of papers read, officers elected, etc., can be located in the proceedings under Societies. Editorials, News of the State, Marriages, Deaths, Public Health Items are classified under these headings. The subjects of editorials also appear alphabetically and are marked (E).

A	
Adiposis Dolorosa. A. G. Wittman, Peoria	165
Administration Code of Illinois, Public Health and Practice of Medicine. John A. Robison, Chicago.....	282
Address of the President-Elect. E. B. Coolley, Danville.....	367
Albee, Fred H. Abstract.....	67
Alcoholism at Sceleth Hospital. Chas. E. Sceleth, Chicago.....	358
Alcoholism as Observed at the Sceleth Hospital of the House of Correction. Chas. E. Sceleth.....	387
Alcoholism in Production of Criminal, Pauper and Insane. John L. Whitman, Chicago.....	358
Alcoholism, Its Psychology and Rational Cure by Psychotherapy. A. H. Burr, Chicago.....	245
Alienists and Neurologists Program. (E)	350
Amaurotic Family Idiocy. E. F. Leonard, Chicago.....	327
American Association of Industrial Physicians and Surgeons. (E).....	417
Anderson, C. H. Paper.....	178
Andrews, E. Wyllys. Discussion.....	130
Anesthesia, Safety First in. Thos. L. Dagg, Chicago.....	407
Anesthesia, Local. Frederick G. Dyas, Chicago	295
Anesthesia, Local. Frederick G. Dyas, Chicago. Abstract.....	358
Antiseptics and Germicides, Their Uses and Abuses. S. J. Russell, Chicago	405
Annual Meeting. (E).....	271
Annual Meeting; Change of Date (E)	184
Annual Meeting; Program. (E).....	346
Annual Meeting; Welcome. (E).....	345
Appendicitis Complicating Pregnancy. Aime Paul Heineck, Chicago.....	215
Appendicitis, Chronic. George D. J. Griffin, Chicago.....	403
Arteriosclerosis and Its Relation to Mental Diseases. Edw. F. Leonard, Chicago.....	393
Arthritis, Metastatic. Philip H. Kreuscher, Chicago	68
Ataxia, Treatment of Tabetic, by Exercises. L. J. Pollock, Chicago.....	331
Auto Sparks and Kicks: Storage Batteries	357

B	
Bahr, Max A. Paper.....	44
Bailey, Benj. Discussion.....	361
Barnes, Rollin H. Paper.....	231
Beck, Emil G. Abstract.....	285
Beck, Emil G. Paper.....	107
Beck, Jos. C. Abstract.....	70
Belfield, Wm. T. Discussion.....	282
Beveridge J. M. Paper.....	267
Bio-Chemistry of Topical Applications; Boric Acid in Septic Infections. Edw. H. Ochsner, Chicago.....	139
Birth Control. (E).....	57
Blindness, Purpose and Plans of Illinois Society for Prevention of. Carolyn C. Van Blarcom, Chicago.....	69
Bliss, George. Paper.....	46
Bloomington, the Convention City. (E)	272
Bloomington Meeting. (E).....	345
Bloomington Meeting, The. (E).....	413
Bone, Diseases of. Richard R. Smith, Grand Rapids, Mich.....	68
Bone Lesions, Differential Diagnosis of. E. G. Beck, Chicago.....	285
Bone Surgery of Present War. Fred H. Albee, New York City.....	67
Book Notices:	
Animal Micrology. M. F. Guyer.....	214
Bacteriology, Text Book of General. Edw. O. Jordan.....	213
Blood and Urine Chemistry. R. H. B. Gradwohl.....	289
Botanic Drugs. Thos. S. Blair.....	434
Cancer, Its Cause and Treatment. L. Duncan Bulkley.....	433
Care of Patients. E. E. Montgomery	214
Clinical and Laboratory Technic. H. L. McNeil.....	214
Clinical Tuberculosis. F. N. Pottinger	290
Collected Studies, University of Illinois College of Medicine.....	290
Diseases of Children. George M. Tuttle	434
Diseases of the Stomach, Intestines and Pancreas. Robert Coleman Kemp	433
Gynecology, Clinical. Jas. C. Wood	214
Gynecology, Practice of. W. E. Ashton	213

How to Run an Automobile. Victor W. Page.....	434
Internal Secretions; Their Physiology and Applications to Pathology. E. Gley.....	434
Medical Clinics of Chicago.....	214
Medical State Board Questions and Answers. R. Max Goepf.....	432
Murphy, John B., Clinics of.....	138
Nervo-Muscular Mechanism of the Eyes and Routine in Eye Work. G. C. Savage.....	138
Nervous Diseases, Manual of. Irving G. Spear.....	213
Ophthalmology, Text Book on. Hofrat Ernst Fuchs.....	434
Physical Diagnosis. Austin Flint.....	213
Potter's Compend on Materia Medica, Therapeutics and Prescription Writing. A. D. Bush.....	433
Practical Medical Series. Vol. 1. Frank Billings.....	434
Practical Treatise on Fractures and Dislocations. Lewis A. Stimson	433
Skin, Diseases of. Henry Stelwagon	213
Suggestive Therapeutics, Hypnotism and Psychic Science. H. S. Monroe	289
Surgical Clinics of Chicago.....	289
Surgical Clinics of Chicago.....	433
Traumatic Surgery. John J. Moorhead	432
Therapeutic Exercise and Massage. C. H. Bucholz.....	214
Urinalysis. B. G. R. Williams.....	214
Booth, David S. Paper.....	260
Boric Acid in Septic Infections.....	139
Bradley, Luther D., Cartoonist. (E).....	122
Brawley, Frank. Discussion.....	361
Bremerman, L. W. Abstract.....	68
Brown, E. V. L. Abstract.....	360
Brown, E. V. L. Case Report.....	283
Brown, Herman H. Abstract.....	70
Burr, Albert H. Paper.....	245
Buswell, C. A. Paper.....	291
Butner, A. J. Paper.....	247
C	
Caldwell, Chas. P. Abstract.....	282
Calculus, Ureteral. L. W. Bremerman, Chicago	68

- Cancer, Hereditary or Contagious. (E)120
- Cancer Problem, Modern Aspect of. G. Kolischer, Chicago.....163
- Cancer, The Conquest of. Alexius McGlannan, Baltimore, Md.....368
- Can You Beat It? (E).....416
- Carlson, A. J. Abstract..... 68
- Causey, Frederick A. Paper..... 47
- Cbemothorapy in Tuberculosis..... 99
- Cbest Lesions 1
- Chicago Medical Society Election. (E)415
- Child, The Crippled. F. C. Test, Chicago340
- Child, The Crippled. F. C. Test, Abstract282
- Choroid, Sarcoma of. L. J. Hughes. Elgin,363
- Clark, W. T. Paper.....312
- Clark, S. N. Paper.....395
- Clinical Week Program. (E).....123
- Commissions for Prescriptions. (E). 57
- Coolley, E. B. Address.....367
- Cornea and Retina of the Eye. Robert Von Der Heydt, Chicago.....362
- Cornea, Calcareous Deposits in. Harry S. Gradle, Chicago.....360
- Corper, H. J. Paper..... 81
- Correspondence:
- Comprehensive Laboratory for Cook County Hospital203
- Criticism of Report on Health Insurance and Answer of Committee419
- Dentistry vs. Medicine.....351
- Diagnostic Stations of M. T. S.....124
- Medical Reserve and Medical Societies230
- Question of Importance, A.....351
- Cunningham, John H. Abstract..... 69
- D
- Dagg, Thos. L. Paper.....407
- Danforth, W. C. Paper.....156
- Darling, C. G. Abstract.....362
- David, Vernon C. Abstract..... 68
- Davis, H. I. Discussion.....359
- Day, Dudley W. Paper.....322
- Deaths:
- Adams, Davis Seeley; Macomb...212
- Allen, William Henry; Pekin...289
- Allison, William Russell; Peoria..212
- Ames, Edmond H.; Antioch.....289
- Anscher, Herman; Chicago..... 76
- Baker, William Edward; Chicago..432
- Barnett, Allen A.; Jerseyville...212
- Becker, John; Chicago.....137
- Berry, Riland Dillard; Springfield.. 76
- Brundage, Moses Simmons; Rockford 76
- Bunch, Rodney J.; Table Grove.. 76
- Burwash, Henry J.; Chicago.....212
- Butler, Jacob; E. St. Louis.....289
- Caldwell, Charles E.; Chicago...137
- Clyne, James A.; Joliet.....137
- Coleman, W. Franklin; Chicago..137
- Cornelius, Maximilian C.; Chicago.366
- Crowell, John Charles; Paw Paw.. 76
- Curtis, John Thomas; Abilene, Kas.289
- Denny, Robert Stevenson; Aurora.212
- Dewey, James R.; Chicago.....289
- Elliott, John Milton; Peoria.....212
- Evans, Florence Louise; E. St. Louis289
- Everett, William Washington; Highland366
- Farquharson, Henrietta M.; Chicago 76
- Fitzmaurice, John T.; Chicago...137
- Ford, Noel Bertram; Springfield..432
- Foreman, Claude Bernard; Kane.. 76
- Fugate, John T.; Urbana.....137
- Glidden, Stephen C.; Danville...211
- Hansen, Frank; Worden.....288
- Harris, Harvey Lindsey; Bellflower289
- Hawley, George Fuller; Chicago..366
- Hilliard, Sumner Hale; Mount Dora, Fla.432
- Hinkle, Abbie A.; Evanston.....366
- Hollmers, William David; Chicago.137
- Huber, Joseph Emil; Peoria.....289
- Jackson, Henry H.; Chicago.....432
- Jones, Joseph Philip; Chicago.... 76
- Kellogg, Henry Reynolds; Chicago.211
- Kinder, Roscoe George William; Rockford432
- Knodle, Ephraim A.; Arthur.....432
- Lanigan, Thomas Leigh; El Paso, Tex. 76
- Lowenrosen, Michael; Chicago...432
- MacDonald, Edward V.; Chicago..432
- McWilliams, Samuel Anderson; Chicago137
- Mitchell, Alice; Chicago..... 76
- Moulding, DeCou Carpenter; Chicago 76
- Neill, William John; Chicago...432
- Newcomer, Jacob S.; Chicago.....212
- Nixon, Madison G.; Columbia...432
- Norton, Effa A.; Chicago.....137
- Ogden, Henry W.; Evanston.....366
- Onion, Emory Oliver; Summum...137
- Park, Andrew James; Oak Park.. 76
- Pasfield, George; Springfield.... 76
- Pierron, Joseph J.; Chicago.....137
- Poppe, Otto B.; Chicago.....432
- Ross, Nora Johnson; Chicago.... 76
- Ryan, John J.; E. St. Louis.....212
- Schwartz, Lothar M.; Chicago...137
- Scouller, John Dean; Pontiac...366
- Sieber, Francis Adam P.; Chicago. 76
- Smith, Francis A.; Rock Island..212
- Smith, George Roger; Bloomington432
- Stites, John J.; Pontiac.....366
- Streng, William Henry; Richmond. 76
- Swan, Charles F.; Chicago.....289
- Sweetland, Nelson L.; Newark... 76
- Von Werder, Arthur; Chicago...366
- Walling, Willoughby; Chicago... 76
- Weidman, Peter Schermerhorn; Marine and Ewardsville.....136
- White, Harvey A.; Chicago.....366
- Winn, Chester Arthur; Alton.....289
- Decompression, Indications for. Wm. H. Perry, Sterling309
- Dementia Praecox Studies; Etiology and Treatment. Bayard Holmes, Chicago 9
- Dercum's Disease165
- Diabetes Mellitus; Why Glycosuria and Acidosis Increase. Max B. Leviton, Chicago 34
- Diabetes, Modern Treatment of. C. H. Lovewell, Chicago.....240
- Drake, C. St. Clair. Paper.....379
- Dyas, Frederick G. Abstract353
- Dyas, Frederick G. Paper295
- Dysentery, Amebic. John W. McGuire, Chicago168
- E
- Editorials:
- Alienists and Neurologists Program350
- American Association of Industrial Physicians and Surgeons..417
- Annual Meeting271
- Annual Meeting—Change of Date..184
- Annual Meeting—Program346
- Annual Meeting—Welcome345
- Birth Control 57
- Bloomington, the Convention City..272
- Bloomington Meeting345
- Bloomington Meeting, The.....413
- Bradley, Luther D., Cartoonist...122
- Cancer, Hereditary or Contagious..120
- Can You Beat It?.....416
- Chicago Medical Society Election..415
- Clinical Week Program.....123
- Commissions for Prescriptions... 57
- Eight Hour Bill.....415
- Health Insurance119
- Health Insurance Bill 57
- Health Insurance, Medical Attendance121
- Health Insurance, Medical Provisions of Tentative Draft of Act.. 58
- Health Insurance, Objections to Social188
- Health Insurance Rejected185
- Join the Union, Why Not?.....185
- Malpractice Claims and Treatment of Fractures.....121
- Medical Legislation 62
- Medical Men for the Army.....350
- Medical Men for the Navy.....350
- Medical Officers' Reserve Corps..279
- Medical Practice Act, House Bill 657275
- Medical Practice Act, Revision of..276
- Medical Profession, Symposium on..122
- Medical Society of the Missouri Valley, Program.....197
- Membership Notice119
- Moving the Clock Ahead.....416
- Navy, Health of the..... 61
- Notice to County Secretary.....278
- Pay the Physician..... 61
- Physicians Excluded from New Hospital 62
- Resolutions Passed by the House of Delegates.....414
- Senate Bill 90.....134
- State Board Examinations.....196
- Status of Pending Legislation...414
- Trust Family Doctor, Not Scientist123
- University of Illinois Medical Dept.276
- Workmen's Compensation Commission195
- Edmonson, Edw. E. Paper.....230
- Eight Hour Bill. (E)415
- Eisenstaedt, J. S. Abstract.....281
- Endocarditis in Children; Etiology and Diagnosis. G. H. Withers, Chicago263
- Endocarditis, Recurrent S. Viridans. Nadler and Herndon.....339
- Eye, Anterior Chamber Obliteration, Operation for. C. G. Darling, Chicago362
- Eye, Ear, Nose and Throat Relations. Jos. C. Beck, Chicago.... 70
- Eyes of Kittens in Opthalmic Teaching. Wm. A. Fisher, Chicago....285

F

- Fantus, Bernard. Discussion.....359
 Feeble-Minded, Education of. Geo. Bliss, Ft. Wayne, Ind..... 46
 Findlay, E. K. Case Report.....282
 Fisher, Wm. A. Abstract285
 Fisher, Wm. A. Case Report.....130
 Flat Foot, Massage and Exercises in Treatment of. Hugo Ad. Oldenborg, Chicago324
 Folie à Deux, Report of a Case of. S. N. Clark, Kankakee.....395
 Francis, Frank D. Paper301
 Francis, Horace M. Paper228
 Freer, Otto Tiger. Paper.....186
 Friend, Wm. M. Paper..... 23

G

- Gall Bladder, Removal of. E. Starr Judd, Rochester, Minn.....144
 Gardner, Wilfred H. Paper..... 54
 Gastric Ulcer and Gastric Cancer. Frank Smithies, Chicago149
 Gastric Ulcer and Gastric Cancer. Frank Smithies, Chicago. Abstract.128
 Gehrman, Adolph. Discussion.... 71
 Gekler, W. A. Paper..... 86
 Gemmill, Wm. N. Discussion.....359
 Goiter, Late Operative Results in. Vernon C. David, Chicago..... 68
 Goldenburg, Michael. Discussion...361
 Gonorrhea, A New Procedure in Diagnosis of. Louis D. Smith, Chicago222
 Gradle, Harry S. Case Report.....360
 Gradle, Harry S. Discussion...70, 130, 361
 Griffith, Jefferson D. Abstract.....359
 Griffin, George D. J. Paper.....403

H

- Hall, Geo. W. Abstract.....281
 Hall, Omar O. Paper.....234
 Halperin, Geo. Paper.....103
 Hamburger, W. W. Discussion....128
 Hanford, C. W. Paper.....389
 Harrison, M. W. Paper..... 99
 Hartung, Adolph. Paper..... 1
 Hassin, G. B. Paper..... 51
 Heacock, Edw. W. Paper.....100
 Health Insurance. (E).....119
 Health Insurance Bill. (E)..... 57
 Health Insurance from the Standpoint of the Physician. C. T. Palmer, Springfield 5
 Health Insurance Legislation, Some Objections to. Edw. H. Ochsner, Chicago 77
 Health Insurance, Medical Attendance. (E)121
 Health Insurance, Medical Provisions of Tentative Draft of Act. (E) 58
 Health Insurance, Objections to Social. (E).....188
 Health Insurance Rejected. (E)...185
 Heart, Disease of; Cardiac Incompetence, Clinical Aspect of. George Richter, St. Louis, Mo.....315

- Heineck, Aime Paul. Paper.....215
 Hemorrhoidal Consideration with Reference to Modern Ideas. R. H. Barnes, St. Louis, Mo.....231
 Hemorrhoids, Their Cause and Treatment. Franklin A. Turner, Rockford174
 Hendricks, E. L. Paper.....238
 Herndon, Richard F. Paper.....339
 Herzog, Maximilian. Discussion...129
 Holmes, Bayard. Paper..... 9
 Home Talent. George K. Wilson, Streator320
 Hospital for Insane; Medical Service. H. Douglas Singer, Kankakee334
 Hoyne, Archibald L. Paper.....401
 Hughes, Lawrence J. Case Report..363
 Humes, Chas. G. Paper..... 38
 Hunger and Appetite in Disease. A. J. Carlson, Chicago..... 68

I

- Infantile Paralysis, see Poliomyelitis.
 Infantile Paralysis, Symptoms and Diagnosis of. Thomas McEachern, Rochelle 21
 Infections, Boric Acid in Septic...139
 Insanity, Forms of, Most Frequently met by Physicians. C. H. Anderson, McLeansboro178
 Intestine, Autopsy Findings in Disease of. Horace M. Francis, Woodstock228
 Iodine, Therapeutic Value in Tuberculosis and Other Infections. John Ritter, Chicago 94
 Irons, E. E. Abstract360
 Irons, E. E. Case Report283

J

- Johnson, Chas. B. Paper.....153
 Join the Union, Why Not? (E)...185
 Judd, E. Starr. Paper.....144

K

- Kolischer, G. Paper.....163
 Koll, I. B. Abstract.....280
 Kreuscher, P. H. Abstract..... 68

L

- Lenticular Degeneration, Case of Bilateral. M. A. Bahr and F. C. Potter, Indianapolis, Ind..... 44
 Leonard, Edw. F. Discussion..... 43
 Leonard, Edw. F. Paper.....327
 Leonard, Thos. H. Discussion.... 43
 Legislation, Status of. (E).....414
 Leviton, Max B. Paper..... 34
 Leonard, Edw. F. Paper.....393
 Loring, J. B. Discussion.....361
 Lovewell, C. Hubart. Paper.....240
 Lues, Cerebro-Spinal Theatment. Chas. D. Humes, Indianapolis, Ind. 38
 Luetin Test, Clinical Value of. A. W. Stillians, Chicago.....281
 Lusk, Frank B. Paper.....162

M

- Malpractice Claims and Treatment of Fractures. (E).....121
 Marriage, or Physician as Educator. A. J. Butner, Harrisburg.....247
 Marriages:
 Adler, Hermon Morris; Chicago..366
 Baskin, Nathaniel Isadour; Chicago 75
 Baur, Felix J.; Chicago.....432
 Billenkamp, Sophia; St. Louis, Mo.366
 Bunta, Emil; Chicago..... 75
 Camp, Charles D.; Chicago..... 76
 Curry, Norman Dixon; Chicago...136
 Fortune, Hannihal Claude; Rochester210
 Fox, Frederick G.; Chicago.....136
 Joffe, William; Chicago.....136
 Kolischer, Gustav; Chicago.....136
 Lackner, Julius E.; Chicago.....210
 Maple, Frank Fulton; Chicago...288
 McClinic, Brown S.; Chicago.....210
 Ofner, Lester Irving; Chicago...432
 Peters, John Edward; Clayton...288
 Roth, Henry J.; Chicago.....210
 Sachse, William Gustavus; Morris. 76
 Scharf, Charles Edward; Chicago. 76
 Siebel, John Edward; Chicago...288
 Smith, Fred M.; Chicago.....432
 Thiell, James Edward; Belvidere.432
 Sonnenschein, Robert; Chicago...366
 Strauss, Alfred Adolph; Chicago..288
 Weher, Anthony Thomas; Chicago. 76
 Massage and Exercises in Treatment of Flat Foot. Hugo Ad. Oldenborg, Chicago324
 Mastoid, Radical Operation. Carroll B. Welton, Peoria.....235
 McGlannon, Alexius. Paper.....368
 Medical Legislation. (E)..... 62
 Medical Legislation in Illinois. C. St. Clair Drake, Springfield....379
 Medical Men for the Army. (E)...350
 Medical Men for the Navy. (E)...350
 Medical Officers' Reserve Corps. (E).279
 Medical Practice Act, House Bill 657. (E)275
 Medical Practice Act, Revision of. (E)276
 Medical Profession, Symposium on. (E)122
 Medical Society of the Missouri Valley, Program. (E).....197
 Medicine in Cook County Hospital. Jos. J. Miller, Chicago.....129
 Membership Notice. (E).....119
 Mental Mechanisms. B. F. Williams, Lincoln, Neb. 35
 Metcalf, W. B. Abstract.....282
 Meyers, Karl. Discussion.....130
 Miller, D. W. Paper.....177
 Miller, Jos. L. Abstract.....129
 Minor Ailments Potentially Important. David S. Booth, St. Louis, Mo.260
 Moorhead, James J. Paper..... 29
 Moving the Clock Ahead. (E)...416
 Municipal Tuberculosis Sanitarium. C. P. Caldwell, Chicago.....282
 McEachern, Thomas. Paper..... 21
 McGuire, John W. Paper.....163
 McMichael, O. W. Discussion..... 91

N

- Nadler, Walter H. Paper.....339
 Navy, Health of the. (E)..... 61
 Neilson, Francis. Abstract.....129
 New and Non-Official Remedies.137, 212
 News Items.....481
 News Notes.....74, 135, 209, 287, 365
 Nose, Accessory Sinuses of. Wil-
 fred H. Gardner, Bloomington... 54
 Noticeto County Secretary. (E)...278

O

- Ochsner, Edw. H. Paper.....77, 139
 Oldenborg, Hugo Ad. Paper.....324
 Ormsby, Oliver S. Abstract..... 281
 Ochsner, Edward H. Paper.....371
 Osteomyelitis of the Ribs, Radical
 Cure of. Emil G. Beck, Chicago..107

P

- Palmer, Geo. Thomas. Paper..... 5
 Paresis, Case of Juvenile General.
 F. C. Potter, Indianapolis, Ind... 40
 Pavlov's Work, Review of. James
 Moorhead, Chicago29
 Pay the Physician. (E)..... 61
 Pennington, J. R. Discussion130
 Pennington, J. R. Letter203
 Perry, Wm. H. Paper.....309
 Personals73, 134, 208, 286, 365
 Personals430
 Pettit, R. T. Paper..... 88
 Physicians Excluded from New Hos-
 pital. (E) 62
 Pneumonia. Omar O. Hall, Milford.234
 Pneumonia and Other Affections
 Caused by the Diplococcus of
 Weichselbaum, A Suggestion in
 Ochsner, Chicago.....371
 the Treatment of. Edw. H.
 Poliomyelitis, Anterior, Orthopedic
 Treatment of. E. W. Ryerson,
 Chicago299
 Poliomyelitis, The Present Status of
 Epidemic. Archibald L. Hoyne,
 Chicago401
 Pollock, Lewis J. Paper.....331
 Polyneuritis, Alcoholic, with Trophic
 Disturbances. G. B. Hassin, Chi-
 cago 51
 Post Operative Sequelae. Geo. de
 Tarnowsky, Chicago293
 Potter, Frederick C. Paper.....40, 44
 Pratt, John A. Case Report.....360
 Pregnancy Complicated by Appendi-
 citis215
 Pregnancy in the Tuberculous. Edw.
 M. Heacock, Chicago.....100
 Pregnancy, Medical Complications of.
 R. A. Scott, Evanston.....159
 Pregnancy, Surgical Complications
 of. W. C. Danforth, Evanston...156
 Prostatectomy, Parineal. Weller Van
 Hook, Chicago280
 Prostatectomy, Technique of Supra-
 pubic. I. S. Koll, Chicago.....280
 Prostatic Abscess Operation. J. S.
 Eisenstaedt, Chicago.....281

Public Health:

- Appropriations for the State De-
 partment of Public Health.....418
 Annual Summary of State Health
 Work 63
 Conference on Infantile Paraly-
 sis125
 Contagious Disease Situation in Il-
 linois200
 Exclusion of Unvaccinated Chil-
 dren from School..... 64
 Health Circular for School Chil-
 dren 65
 Illinois State Medical Society, List
 of Officers355
 Illinois State Medical Society, Pre-
 liminary Program273
 Legislation Affecting Health Activ-
 ities in Illinois.....198
 Legislation of Interest to Physi-
 cians201
 Medical Interest Conserved in Con-
 solidation Bill199
 New State Department of Public
 Health353
 Poliomyelitis Conferences125
 Service Guide of State Board of
 Health 64
 State Relief for Storm Sufferers..418
 Tornado at Mattoon and Charles-
 ton417
 Pyelitis Treated Successfully with
 Silvol. J. C. R. Wettstein, Effing-
 ham181
 Pyelotomy vs. Nephrotomy. J. Wel-
 feld, Chicago233

R

- Radium, Some Experiences With.
 C. W. Hanford, Chicago.....389
 Resolutions Passed by the House of
 Delegates. (E)414
 Retinitis Proliferans. E. K. Find-
 lay, Chicago282
 Richter, George. Paper.....315
 Richter, H. M. Discussion..... 67
 Ritter, John. Paper..... 94
 Robertson, John Dill. Abstract....282
 Robinson, G. W. Discussion..... 45
 Robison, John A. Abstract.....282
 Robinson, G. Wilse. Paper.....384
 Rochester, Alexander S. Discussion.361
 Roentgen Diagnosis of Chest Lesions.
 Adolph Hartung, Chicago..... 1
 Roentgen Ray in Diagnosis of Bone
 Tumors. Fred C. Zapffe, Chicago.131
 Rush Medical College to Become Ex-
 tinct. Otto Tiger Freer, Chicago.186
 Russell, S. J. Paper.....405
 Ryerson, Edwin W. Paper.....299

S

- Salvarsan and Neosalvarsan Ther-
 apy. O. S. Ormsby, Chicago.....281
 Sceleth, Chas. E. Abstract.....358
 Sceleth, Chas. E. Paper.....387
 Schmidt, Louis E. Abstract.....281
 School Inspector, Functions and
 Problems of a Medical. D. W.
 Day, Rockford322
 Scott, R. A. Paper.....159
 Scully, Thos. F. Discussion.....359
 Secretary, Our. D. W. Miller, Gil-
 man177
 Senate Bill 90. (E)184

- Silvol181
 Singer, H. Douglas. Paper.....334
 Sinus Disease as Factor in Iritis.
 Irons and Brown, Chicago.....360
 Smith, Louis D. Paper.....222
 Smith, Richard R. Abstract..... 68
 Smithies, Frank. Abstract128
 Smithies, Frank. Paper149
 Social Insurance. Francis Neilson,
 M. P.129
 Society Proceedings:
 Adams County, Nov., 1916..... 66
 Dec. 11, 1916..... 66
 Cook County:
 Chicago Medical society, Nov.
 22, 29, 1916; Dec. 6, 13, 20,
 1916 67
 January 2, 10, 17.....128
 January 24, 31, Feb. 7.....205
 March 21, 28, April 4.....358
 Chicago Medical and Chicago
 Urological Society. Feb. 21..280
 Chicago Medical Society—
 April 11.....424
 April 18-25.....425
 Chicago Ophthalmological Society.
 May 22, 1916..... 69
 May 22, cont'd.....130
 Oct. 16, 1916.....282
 Oct. 16, cont'd.....360
 Dec. 18, 1916.....360
 Dec 18, 1916—cont.....426
 Nov. 20, 1916.....426
 Chicago Roentgen Society. Dec.
 9, 1916131
 Jan. 12207
 Feb. 9285
 Grundy County:—Dec. 1, 1916... 72
 Greene County:—Dec. 15, 1916...132
 Hancock County. April 2.....428
 Henderson County. May 1.....428
 Iroquois-Ford:—Dec. 5, 1916.... 72
 March 6286
 Jo Daviess County:—Jan. 4.....132
 Kankakee County:—Jan. 11.....133
 Lake County. April 19.....428
 Macoupin County. March 27.....373
 Madison County. April 6.....429
 McHenry County:—Aug. 11, Oct.
 13, Nov. 16, 1916..... 72
 Madison County:—Dec. 1, 1916...133
 Jan. 5, 1917.....206
 Feb. 2286
 March 2364
 Montgomery County:—March 27..364
 Montgomery County. April 24....429
 Ogle County:—April 17364
 Pike County:—Jan. 25.....134
 Pike County. April 26.....429
 Rock Island County:—Dec., 1916. 73
 St. Clair County:—Jan. 4.....134
 Wabash County. April 30.....430
 Winnebago County:—April 10....364
 Specific Diseases Treated by Non-
 Specific Foreign Protein. Frank
 B. Lusk, Chicago162
 Speed, Kellogg. Discussion..... 67
 Spirochetæ, Diagnostic Value of. A.
 W. Stillians, Chicago.....281
 State Board Examinations. (E)...196
 Stillians, A. W. Abstract.....281
 Strauss, Alfred. Discussion.....129
 Suker, George F. Case Report..71, 283
 Suker, George F. Discussion.....131

- Superstitions, Survival of, in Practice of Medicine. J. M. Beveridge, Oregon267
- Surgeon, Responsibility of, and Death Following Operative Work. J. D. Griffith, Kansas City, Mo.....359
- Symplepharon. John A. Pratt, Aurora360
- Syphilis in Internal Medicine, The Role of. Aldred S. Warthin, Ann Arbor, Mich.....373
- Syphilis, see Lues.
- Syphilis of Nervous System. Geo. W. Hall, Chicago.....281

T

- Tahoparesis, Juvenile. George F. Suker, Chicago.....283
- Tarnowsky, George de. Paper.....293
- Tay's Sachs' Disease.....327
- Teeth, Foci of Infection About. W. T. Clark, Ft. Atkinson, Wis.....312
- Test, F. C. Abstract.....282
- Test, F. C. Paper340
- Tic Douloureux. Some Case Reports. G. Wilse Robinson, Kansas City, Mo.....384
- Tonsil as Portal of Entry in Tuberculosis of Cervical Glands. W. B. Metcalf, Chicago282
- Trachoma, Surgical Care of. E. E. Edmondson, Mt. Vernon.....230
- Trust Family Doctor, Not Scientist. (E)128
- Tubercular Hip Disease in Children. E. L. Hendricks, Lanark.....238
- Tuberculin Therapy. Lawrence J. Quillin, Streator 91

- Tuberculosis, A Cause of Iritis. E. V. L. Brown and E. E. Irons, Chicago283
- Tuberculosis, Chemotherapy in. M. W. Harrison, Collinsville..... 99
- Tuberculosis, Diagnosis of Early Pulmonary, George Halperin, Chicago.103
- Tuberculosis, Influence of Mixed and Secondary Infection Upon Pulmonary. R. T. Pettit, Ottawa..... 88
- Tuberculosis Notes.....66, 127, 196
- Tuberculosis, The City Problem. J. D. Robertson, Chicago.....282
- Tuberculosis in Pregnancy.....100
- Tuberculosis, Laboratory Investigations in. H. J. Corper, Chicago... 81
- Tuberculosis Problems, Clinical Application of. W. A. Gekler, Chicago 86
- Tuberculosis Treated by Tincture of Iodine 94
- Turner, Franklin A. Paper.....174
- Typhoid Fever, Report of Epidemic of. Wm. M. Friend, Park Ridge.. 23

U

- University of Illinois Medical Dept. (E)276

V

- Vaccine Therapy in Treatment of Modern Diseases. Frank M. Wood, Chicago 13
- Van Blarcom, Carolyn C. Abstract.. 69
- Van Hook, Weller. Abstract.....280

- Vesalius, Andrew, Founder of Modern Anatomy. Chas. B. Johnson, Champaign253
- Vesiculitis and Prostatitis. John Cunningham, Boston, Mass..... 69
- Vitreous Chamber, Bony Tumor of. Heman H. Brown, Chicago..... 70
- Volvulus Post Operative. C. A. Buswell, Chicago291
- Von Der Heydt, Robert. Abstract..362

W

- Warthin, Aldred S. Paper.....373
- Wassermann Blood Reaction, Clinical Value of. L. E. Schmidt, Chicago281
- Watertown State Hospital, Welfare Report of Cases. F. A. Causey, East Moline 47
- Welfeld, J. Paper.....233
- Welton, Carroll B. Paper.....235
- Wettstein, J. C. R. Paper.....131
- Whitman, John L. Abstract.....358
- Williams, B. F. Paper..... 35
- Williams, Tom A. Discussion..... 43
- Wilson, George K. Paper..... 320
- Withers, G. H. Paper.....263
- Wittman, A. G. Paper.....165
- Wood, Frank M. Paper..... 13

Z

- Zapfee, Fred C. Abstract.....131

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI

CHICAGO, ILL., JANUARY, 1917

No. 1

Original Articles

THE ROENTGEN DIAGNOSIS OF CHEST LESIONS.*

ADOLPH HARTUNG, M. D.,
CHICAGO.

Roentgenologist, Henrotin Polyclinic and Alexian Bros. Hospitals and University of Illinois School of Medicine.

The object of this paper is to present Roentgen findings which may serve directly or differentially in the diagnosis of more or less obscure lesions in the chest and give material information regarding their prognosis and treatment. In many of these conditions the findings are sufficiently characteristic to base a diagnosis on them alone;

Before considering the chest proper, two conditions occasionally discovered in chest examinations by the x-ray will be referred to. A persistent thymus may be shown as a triangular shadow over the heart or great vessels and be associated with dyspnea or spasmodic asthma. An unsuspected substernal goiter or neck tumor may disclose itself by compression of the trachea and encroachment on its lumen and explain an otherwise unaccountable dyspnea.

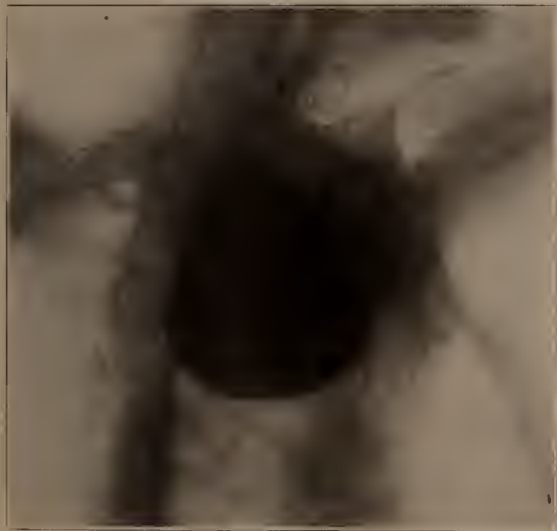


Fig. 1. Large Pressure Diverticulum of Upper Esophagus.

oftener, however, they are merely supplemental and confirmatory, and in no wise supplant other methods of examination. The title was purposely made indefinite and comprehensive to permit consideration of conditions which present similar symptoms clinically, and do not point directly to the point involved.

*Read before the North Side Branch, Chicago Medical Society.



Fig. 2. Case of Cardiospasm With Dilated Esophagus.

Lesions of the mediastinum may cause symptoms referable to the digestive, circulatory, or respiratory systems, or they may cause general symptoms without focal manifestations. If difficulty in swallowing is the predominating com-

plaint, attention is directed to the esophagus primarily and the giving of an opaque paste of variable consistency will demonstrate the presence of an obstruction within or external to that organ. Ordinarily food requires about six seconds to reach the stomach. In stricture, whether traumatic and benign or malignant, it may be much delayed, and if diverticula be present these may retain their contents for many hours. Spasm of the cardia if long continued may cause much



Fig. 3. Case of Carcinoma of Esophagus With Marked Constriction.

dilation of the esophagus with retention and subsequent dyspnea.

Dysphagia may likewise be caused by mediastinal tumors or aneurysms, although with these respiratory or circulatory symptoms usually predominate. Lymph glands may become much enlarged as in Hodgkin's disease or glandular tuberculosis and cause pressure on the surrounding structures. New growths such as sarcoma or endothelioma may be readily demonstrated. These can usually be differentiated from aneurysm by the lack of pulsation and irregular outline. Exceptionally the differentiation is practically impos-

sible as in a case where tumor was diagnosed and autopsy following death by hemorrhage revealed a mass of enlarged tubercular glands closely adherent to wall of aorta, which was distended to



Fig. 4. Case of Sacular Aneurysm of Arch of Aorta.

small aneurysm. Dilation or aneurysm of the aorta or its large branches can be easily recognized on the fluoroscopic screen.

Occasionally a toxemia such as follows an infection may be shown to be associated with enlarged mediastinal or bronchial glands and in



Fig. 5. Case of Mediastinal Tumor Composed of Much Enlarged Tubercular Glands and Small Aneurysm of Aorta.

the absence of other pathology to account for the symptoms, it may reasonably be assumed that a casual relationship exists between them. Children of a tubercular tendency reacting strongly to tuberculin but showing no evidence of the disease elsewhere should be examined Roentgenographically, for such glands are often found present and this examination is the only one capable of demonstrating them conclusively.

In the diagnosis of heart lesions the x-ray is of far less value than the stethoscope. Definite valvular lesions present fairly definite and characteristic pictures, but these are far from infallible. As regards the size, far more accurate outlines can be obtained by the x-ray, especially if the orthodiagraph or teleroentgenographic methods are used than can be elicited by even the most careful percussion. The age of the individual,

tion may be used as an index to its functional capacity.

The x-ray gives positive information in cardiac hypertrophy, dilation, and such congenital conditions as persistent ductus arteriosus.



Fig. 6. Large Mediastinal Tumor. Autopsy Showed This to Be An Endothelioma.

shape of chest and other factors materially influence the picture presented, even in normal cases. Drop heart is often associated with tuberculosis or in individuals of the asthenic type.

In the course of some work done in conjunction with Dr. Williamson, to determine the effect of exercise on normal and pathological hearts, it was found that considerable information could be elicited regarding the functional efficiency of the cardiac muscle. Exercise causes diminution in the size of normal hearts and even in many pathologic ones, and the amount of this contrac-



Fig. 7. Enlarged Para-Tracheal Gland.

Situs inversus is, of course, easily demonstrable by the x-ray, and cases of supposed transposition due to adhesions or pressure are readily differentiated.

The value of the x-ray in the diagnosis of pul-



Fig. 8. Advanced Tuberculosis of Lungs With Numerous Calcareous Deposits.

monary lesions is hardly recognized as generally as it deserves to be. This is due partly to the fact that too much reliance was formerly placed on a single plate. To give information commensurate with its possibilities, a fluoroscopic examination plus an antero-posterior and a postero-anterior exposure (or preferably stereoscopic ones) should be made. Great care is necessary in interpreting the various shadows, and due allowance should be made for variations from the ordinary which may still be within the realm of normal. This refers especially to hilum shadows, a compound shadow composed of bronchial walls, blood vessels and lymph channels and nodes. To this may be added the presence of particles of

cipient cases are rather vague; until appreciable areas of consolidation have formed no evidence of the condition may manifest itself on the roentgenogram. If the condition is unilateral the



Fig. 9. Case of Pleural Effusion Completely Filling Right Chest.

various kinds of dust. Secretion in the bronchi with fibrosis might readily be confused with a possible tuberculosis of the bronchial type. Bronchiectatic cavities likewise are not sufficiently characteristic in many cases to permit of positive diagnosis. Tubercular lesions, which may have long since passed the active stage and become healed, may leave scars which closely simulate active ones on roentgen examination. Thus calcareous deposits are often visible where no clinical signs or symptoms are present. It has been asserted that sharply outlined consolidation shadows meant a healed process, but this fact has not been proven conclusively.

In pulmonary tuberculosis the x-ray can give much valuable information. The findings in in-

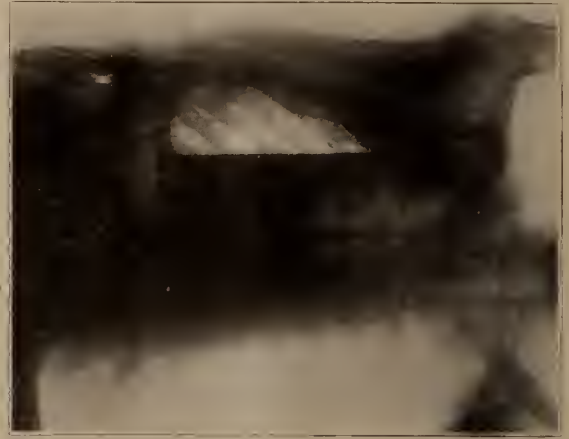


Fig. 10. Large Pulmonary Abscess. Plate Taken With Patient Lying on Side.

diaphragm may show some lagging on the affected side or the apex may not light up as brightly as on the well side. On the other hand, if the affected areas are so situated that they are not readily accessible to stethoscopic examination or percussion, the x-ray may furnish earlier evidence than can be obtained otherwise. When consolidation appears the x-ray certainly offers more accurate methods of determining its extent and location than other means. Then, too, the



Fig. 11. Metastatic Sarcoma at Hilum of Right Lung Following Sarcoma of Humerus.

progress of the disease can be followed in a graphic way.

In acute conditions of the lung such as pneumonia or bronchopneumonia the use of the Roentgen examination is rarely indicated, unless it be in atypical cases for differential diagnosis. Here the consolidated areas can be clearly shown. Later on, if resolution is delayed, it is of great value in locating abscesses and empyema, and in the latter condition it may offer valuable aid to the surgeon as to the best site for operation. Late results such as atelectasis can be shown.

Pleural effusions, be they serum, pus or blood, can be readily demonstrated both as to the extent and location by the x-ray, but no differentiation as to the nature of the fluid is ordinarily possible.



Fig. 12. Metastatic Carcinoma of Lungs.

The fibrinous variety of pleurisy may leave adhesions which are visible on the screen, but great care must be used not to confuse normal irregularities for adhesions of the diaphragm. Irregularly thickened pleura may simulate tuberculous consolidation.

Such general conditions as emphysema or asthma, rarely show findings of value. Pulmonary congestion and edema can be shown, but are of greater interest than value.

Malignancy of the lung is comparatively rare, the secondary variety being found oftener than the primary. It usually occurs as multiple metastatic foci. Carcinoma tends to radiate out-

ward along the bronchi, whereas sarcoma usually shows a more or less rounded area of consolidation distributed irregularly throughout the lungs.

Occasionally Roentgen examination of the chest reveals condition which have their origin elsewhere. Thus a hernia through the diaphragm or marked displacement upward, due to a pathologic condition below, may be discovered. Likewise, an examination of the chest preceding one of the gastro-intestinal canal, may give information of unsuspected lesions, which may be the etiologic factor responsible for the patient's symptoms. A heart or lung lesion which might have been overlooked may be thus disclosed.

Although much still remains to be definitely determined in regard to the Roentgen diagnosis of chest lesions, especially in the field of interpretation, enough positive information can be derived to warrant a routine x-ray examination in all obscure conditions.

25 E. Washington Street.

HEALTH INSURANCE FROM THE STANDPOINT OF THE PHYSICIAN.*

GEORGE THOMAS PALMER, M. D.,

President of the Illinois State Association for the Prevention of Tuberculosis; President of the Illinois Public Health and Welfare Association; Director of the Springfield Open Air Colony.

SPRINGFIELD, ILLINOIS.

A short time ago, in the editorial pages of a medical journal, there appeared the statement: "Health insurance is inevitable and the physician may as well make the best of it." There seems to be little question but that health insurance is inevitable, and whether we, as a state and nation, make the best of it or make the worst of it, depends very largely upon the medical profession. As a subject which affects us vitally, we as physicians must approach it thoughtfully. As a problem which means so much to the rank and file of the working people, we must consider it broadly and unselfishly.

Like other steps in social progress, it cannot be stopped by our opposition. It may lie within our power to delay it temporarily, but eventually it will come. When it does come, it will necessitate a large readjustment of the relationship of the physician to the people. This readjustment will be less disturbing if the medical profession

*Presented before the New England Conference on Tuberculosis, New Haven, Conn., Oct. 12, 1916.

will interest itself in health insurance and will act thoughtfully in moulding legislation than if we array ourselves against it and find ourselves ultimately in a place where the laws are passed regardless of our protests.

What the exact nature of the health insurance law should be, is quite beyond the province of these remarks. I have no intention of offering arguments for health insurance. The facts that thirteen European nations already have the system in operation and that many of the states of the Union are considering legislation leading toward its adoption here, indicate that there is nothing fanciful, Utopian or experimental about it.

We have before us certain essential facts which confronted these European nations. The great mass of working people are more subject to disease than other classes. This illness imposes a serious loss upon these people, a loss which they,—less than any other class,—are able to bear. The expense of illness, in loss of time and cost of care, deters these people from seeking medical aid when the disease is preventable or easily curable. Further, this class is probably less capable of selecting competent medical service than other classes.

We are also confronted with the facts that employers are bearing a part of this cost in losing essential parts of their industrial machinery through unnecessary illness, and that the communities are sustaining a loss through industrial inefficiency and through the extension of communicable disease, due to lack of prompt and competent medical supervision.

Our problem, then, in addition to cash compensation for time lost and provision for the burial of the individual, is to guarantee to the working classes that character of medical service which will prevent or minimize or speedily cure disease, and to provide the service under such conditions that the individual will readily avail himself of it.

In the opinion of the average working man, a doctor is a doctor. He has little conception of the very wide difference in the character of medical service which one physician may render as compared with that of another. In most of the ventures which have been made in privately conducted health insurance in this country, the same impression seems to prevail. Lodges and fraternal organizations, as a rule, place so small

a valuation upon medical service that they can attract only very young and inexperienced physicians or those who are unsuccessful in the ordinary pursuit of their profession. One is impressed, in considering their scales of compensation, that they have little thought except to purchase the medical title;—that the one requisite is that their physicians shall be legally authorized to practice and may follow their calling without colliding with the arm of the law.

While the standards of medical education have been steadily raised in most of the states in the past few years, the advance has been very recent and the standards are not yet such as to justify the assumption that medical licensure guarantees that a man is competent to practice. In the majority of states there is still a very large percentage of the medical profession of most meager scientific qualifications with hundreds and thousands void of even ordinary, fundamental education. To a large extent, it is from such physicians,—incapable of attracting the better kind of practice and satisfied with modest compensation,—that the poorer classes of our working people are receiving their medical care. It is from these classes of physicians, incidentally, that many of the existing health insurance organizations are recruiting their medical men.

This condition in the medical profession, which is in no way denied by representative and democratic medical bodies, must be given serious consideration if the health insurance of the future is to realize a great deal of what we are disposed to expect from it. The provision of incompetent medical service, though it be free as the desert air or even obligatory, will not bring us any of our desired ends.

A short time ago, Dr. Richard C. Cabot, of Boston, contributed a series of articles to a popular magazine in which he held, in substance, that the middle class do not receive as good medical service as either the very rich or the very poor. The very rich are able to employ as competent physicians as they are intelligent enough to select. The very poor,—if residing in large centers of population and if willing to be recognized by the humiliating term of "worthy poor,"—may avail themselves of dispensaries or hospitals in which the service is highly specialized and rendered by physicians of prominence and unusual skill.

There is nothing particularly new in this statement of Dr. Cabot's; but it caused considerable flurry in certain elements of the medical profession and considerable adverse criticism on the part of some of the medical journals. This flurry and criticism, I take it, were not based upon the fact that Dr. Cabot had said anything revolutionary or untrue; but rather that he had betrayed a rather delicate trade secret.

With the enormous strides of scientific medicine, the mastery of the entire subject by any one individual is an utter impossibility. That a physician is even reasonably efficient in all of the branches of medicine and surgery,—as some of them unquestionably are,—implies extraordinary and very exceptional ability.

The general practitioner of the entire field of medicine has not deteriorated. In fact, his intellectual attainment and equipment are generally much greater than those of his forefathers. Medicine has simply grown to a place where it is beyond the limits of one individual mind. The one-man band of the vaudeville may require infinite skill and dexterity on the part of the performer; but it cannot be said to produce satisfactory harmony or musical effect.

The dispensary or hospital, available to the poorer man who is willing to brand himself a dependent in a larger city, represents the development of the various branches of medicine to that degree of accuracy which is capable of the diagnosis and successful treatment in the incipency of disease and the prevention of serious outcome,—such accuracy as we must seek in the fruition of our plans for health insurance. Yet much of the possible value of such institutions is lost because the poorer people are not accustomed or educated to seek medical aid when only moderately ill. They usually do not appear for treatment until actually unable to work, which means,—in some of the more serious and insidious ailments,—until the disease has gained a firm hold upon them.

In the general plan of health insurance, as I understand it, this will be largely overcome by the fact that the employer will urge the employed to seek medical aid early, even at the expenditure of a reasonable amount of working time. Employer and employee will be equally interested in maintaining the health of the workman.

If it be true that, under existing conditions,

the rank and file of the people in moderate circumstances are receiving medical service inferior to that obtainable by the very rich or the very poor, the logical conclusion is that those in medium circumstances should have provided for them the character of service now available to their more opulent and less opulent brothers. This probably means that the individual, all-around physician should give way to groups of medical men working together and competent to render the highest degree of medical care in all its special phases.

That there is urgent need for more specialized medical service is apparent to no group of people more than those engaged in tuberculosis work. It is an open secret that one of the most difficult barriers in the nation-wide anti-tuberculosis crusade is the failure of the medical profession as a whole to diagnose tuberculosis in its earlier and curable stages. Statistics as to individual ability can be nothing more than a wild speculation; but I am willing to venture the opinion, for what it is worth, that not over twenty-five per cent of the physicians in the average community, large or small, have acquired the art of early diagnosis in this particular disease, or, if they have acquired the art, not over twenty-five per cent are utilizing it.

When we take into consideration the great prevalence of tuberculosis among those who will be affected by health insurance,—when we recall the figures obtained in Fall River in 1907, showing about thirty per cent of deaths among industrial workers to be due to tuberculosis as compared with ten per cent among those not so employed,—the foregoing statement becomes exceedingly significant.

The series of articles by Dr. Cabot indicates that there is a beginning tendency in the United States toward group practice,—such as has been so successfully developed by the Mayo's of Rochester, Minn.,—as the means of improving the general character of medical service. At present, as stated, this high-grade specialized care is available to the very rich and to the very poor residing in large cities having free hospitals and free dispensaries. There is no such provision for the poor in the smaller localities, while even the free dispensaries are objectionable to a large percentage of the better and more self-respecting working people. This is especially true of hospitals and dispensaries affiliated with medical schools

where the patients are used as clinical material for teaching purposes.

It occurs to me that the introduction of health insurance in the United States affords an unusual opportunity not only to give to the working people a particularly high grade of medical service, but to elevate the standards of medicine for all classes of people throughout the entire nation. If the medical service obtainable through health insurance could come from groups of physicians selected for their fitness in the various professional lines, these two desirable ends would be assured. It is not necessary that the service should be confined to a single group in the individual community. There could be several such groups from which, if deemed expedient, the insured could make his own selection. The service, however, would be rendered by the group and not by the individual. In fact, any and all physicians in the community could form themselves into these groups, the only condition being that the groups be competent and sufficiently rounded to give efficient medical care.

To attain such an end would require a very definite governmental supervision and such a plan as that suggested by Dr. A. C. Burnham, of New York, in the *Medical Record*, has much to recommend it. Dr. Burnham suggests that health insurance should be carried out in close association with local health departments (so that there would be a recognized, governmental head to it), and that the executive supervision of the project should fall within the province of the State health department.

The advantage of such a plan seems obvious. The official status of the State health department would simplify the matter of organization and rid the project, to a large extent, of the suspicion of favoritism. This close co-operation with public health officials would go far toward assuring the prevention of communicable disease and the promotion of health, which is a very important part of our program.

We must bear in mind that the ideal clinical staff, however competent they may be in their individual lines, would not necessarily be efficient in disease prevention. The mere fact that a man is a doctor no more implies that he is qualified in preventive medicine than that he is successful in abdominal surgery. The organization necessary to carry out our aim in health insurance must include sanitarians as well as diagnosti-

cians and therapists and, inasmuch as all of our plans contemplate participation by the State government, the interests of efficiency and economy point to the State health department as the proper supervising agency.

As to the personnel of the regular groups, it may be said that, left to the individual community and to boards made up only of employers and employees, the likelihood of obtaining more than very mediocre medical men is by no means great.

The medical men for this service, in Dr. Burnham's plan, would be selected by civil service and their employment would in no way be disturbed by politics or the changes of administration. Dr. Burnham suggests, in addition to a regular full-time staff, a group serving part-time and consisting of a pathologist, a nerve specialist, a surgeon, an eye, ear, nose and throat specialist and a dentist. In view of the importance of tuberculosis among the working people, in my opinion, there should be added a man of special skill in the diagnosis and treatment of tuberculosis,—which means something more than the average internist.

This group of physicians of special training does not mean that the individual would run the gamut of a score of specialists before receiving relief for his minor ill; but it does mean that there would be available a staff which would guarantee accurate diagnosis, which would guarantee the recognition of the obvious ailments in their earlier stages and guarantee appropriate treatment in all cases. It would mean the prevention of much illness; the shortening of most illnesses; the avoidance of many serious complications and sequelae and the avoidance of those unfortunate mistakes and delays in diagnosis which may spell the fate of the individual.

In addition to this,—although this may be beyond the point in the discussion of health insurance,—such service for those of modest means would bring infinite benefits indirectly to those in better circumstances. The acceptance of inferior medical service is not confined to the poor nor to the otherwise uneducated. No method of education is so effective as actual demonstration. The mechanical model is more convincing than a chart or picture and the men and women actually doing things are more convincing than mechanical models.

I am impressed that if, in the establishment of

health insurance, we can procure high-grade, scientific and painstaking medical service for the vast army of employed, we will demonstrate to those in better circumstances,—who employ their own doctors,—that there is such a thing as a competent physician and such a thing as an incompetent physician.

We can convince them that a doctor is not simply a doctor. We can place a premium upon medical skill and more thorough professional training. We can make the *trade* of doctoring unprofitable and definitely discourage the low grade medical college, or stimulate it to the adoption of higher standards. In no other way can the standards of medical efficiency throughout the nation be so rapidly raised. Regardless of the general recognition of the advantage to physicians and laymen alike through the highest level of professional training and skill, that level is reached more effectively by the press of commercial necessity than by a simple reliance upon high ideals.

I appreciate fully that such a plan as I suggest will arouse vigorous opposition. There will be scathing denunciation of the "high-brow" and the "self-anointed." There will be complaint of a system which attempts in any way to alter the present status of the family physician. There is in the medical profession a conservatism which, while usually right, at times gives the impression that we are blocking or obstructing social progress. We do not take kindly to new things affecting our medical institutions.

The adoption of a plan of health insurance of any kind will in itself practically revolutionize medical practice. The very contemplation of this revolution is already alarming some of the more conservative. We have learned from past experience, however, that we can readily adapt ourselves to radically changed conditions and that those steps in social affairs which seem most threatening usually prove to be blessings in disguise.

And if this revolutionary change in medical affairs is coming as a part of the steady march of progress, regardless of our opinion about it, it seems the one auspicious time to adjust our methods and to adopt the plan which will best meet the needs of the people for the next half century to come. The adoption of a group method of practice coincidentally with the adoption of health insurance will cause little

more disturbance in our relationships than the adoption of health insurance alone.

Perhaps the plan I propose is too idealistic. Perhaps I am suggesting for a class of people, many of whom now receive no medical care except in extreme illness, a quality of service even superior to that which persons in good circumstances now obtain. However, the establishment of this great new machinery in the several states seems to be a splendid opportunity for a step ahead in the direction in which the highest type of medical service is tending. If the service is established with low standards, it will take many years to bring about definite improvement in it. The incompetent is more easily kept out of the saddle than he is dislodged after once being established.

I appreciate that general assemblies are reluctant to pass laws which arouse protest and I am also aware that this reluctance of general assemblies is responsible for the low standards tolerated in our medical practice acts.

On the whole, it may be advisable to accept the judgment of the county medical societies as to those physicians eligible to health insurance service. This will not assure a particularly high grade of medical skill; but it will guarantee reputable and decent medical men, which is perhaps more than can be expected if the selection is left entirely either to the employer or the employed.

DEMENTIA PRÆCOX STUDIES*

THE PRESENT CONDITION OF ETIOLOGY AND INDICATIONS FOR TREATMENT

BAYARD HOLMES, M. D.
CHICAGO

I make no apologies in coming before you after three years with another essay on dementia præcox. I know it is not a popular subject, but you recognize that this paper is not a pot-boiler. This is a terribly tragic and ominous subject from which our profession and our people are prone to turn aside.

There are today more than 150,000 cases of dementia præcox in public custody in the United States, and fifteen thousand young people, or fifteen regiments of youths, are committed to a hopeless custody each year, and yet

*Presented at the North Branch Medical Society, Chicago, Nov. 10, 1916.

no book on this subject has ever been published in the English language, and no laboratory has been established on the face of the earth designed to solve the ominous riddle of this disease.

Three years ago I presented the evidence furnished by the defensive ferment reaction that there was a physical basis for the youthful insanities. I showed some of the tests and explained the theory of the action of the enzyme on the substrate, and the theory of the origin of the defensive enzyme in the blood.

Since that time the reliability of the dialyzing method of disclosing the characteristic defensive ferments in the blood of dementia præcox patients has been fully established in my own laboratory by myself, and, much more carefully and effectively, in the laboratory of the Psychopathic Hospital by Dr. Julius Retinger. In this particular method, which has seemed to arouse the antagonism and frenzy of the professional research men of America, Dr. Retinger has proved himself a technical expert. His dialyzers are superior to any on the market and his technique follows without ostentatious modifications the original technique of the author of the method. Of the theory and its reliability it is not incumbent upon me to speak.

Only through the unusual hospitality and kindness of Dr. Adam Szwajkajt, have I had the opportunity to study a few cases of dementia præcox as they came into the Psychopathic Hospital, and only through the courtesy and assistance of the warden, the pathologists, and every member of the attending and the house staff of the Cook County Hospital, and especially of Dr. E. Blaine, the Roentgenologist, could the all-too-meager studies which we have accomplished during the past two years have yielded such hopeful and promising material looking toward the solution of the problem.

These are the results of laboratory and literary research bearing upon the condition of the dementia præcox patient which you should bear in mind:

1. The defensive ferment reaction is adequate to demonstrate in the blood of four-fifths of all cases, clinically diagnosed as dementia præcox, defensive ferments against substrates of the sex glands, some glands of internal secretion, and cerebral cortex. Analogous conditions were not found in the blood of seventy lodging house

tramps, but some ferments were found in pneumonia, in exophthalmic goiter, and in syphilis. It has now been pretty well demonstrated that each of those conditions is a toxic process resulting from infection, and that each specific toxin has a selective action on the gland tissue it attacks. Thus in pneumonia the lipid of the adrenal cortex and certain elements in the testicle disappear during the first hours of the disease and do not return until some months after recovery.¹ We have, therefore, presumed that the testicular (and other) dystrophies were due to the toxic substances produced by the dementia præcox *vis morbi*.

2. The clinical course of dementia præcox, a series of exacerbations and remissions, is similar to the exacerbations and remissions of such infectious diseases as the sleeping sickness, hookworm disease, tuberculosis, leprosy, trichinosis, and syphilis.

3. It has been shown by Todde² that the testicle of dementia præcox patients is devoid of living spermatozoa. This is also analogous to the condition of spermatogenesis in well-known infectious processes, such as pneumonia, erysipelas, typhoid fever, and cholera.

4. The eye symptoms in dementia præcox are similar to those in other toxic and taxi-infectious processes.³

5. Blood changes, physical, morphological, and chemical, are indicative of a profound toxemia,⁴ especially the dehydration and the cyanosis are similar to analogous conditions known as methemoglobinemia and sulphhemoglobinemia.

6. The skin symptoms, the circulatory disturbances of the extremities, the purpura, and the gangrene of extremities are similar to analogous conditions in rheumatism and other infectious processes and especially to those of chronic ergot poisoning.⁵

7. The adrenaline paradoxes of Willi Schmidt and Carl Neubürger,⁶ are similar to reactions of the same kind in men or animals poisoned by full doses of ergot. These observations gave a hint of the character of the toxin for which to look in patients with dementia præcox.

8. Ergot of rye has been shown to owe its physiologic activity to twelve amines, some of them excessively toxic, others only mildly so. The most toxic contain the benzol, the indol, or the iminazol rings. The most toxic of all is

histamine, which contracts the uterus but lowers the blood pressure. The second in toxicity contracts the uterus slightly but raises the blood pressure. It is known as tyramine. The third in potency and the least toxic is indolethylamine.⁷

9. The blood pressure in dementia præcox is generally low, 100-80 or less. Therefore, if the adrenalin paradoxes are due to a previous toxemia with one of the toxins of ergot, then histamine seems to be the one toxine most likely to give rise to the dementia præcox picture.

The toxic process in dementia præcox which we premise from the preceding postulates may be due to one or more toxins working in a direct or in an anaphylactic manner. If this process is infectious it may be due to a septicemic or saprophytic condition. Dr. B. Nadler was kind enough to make blood cultures from seven of the patients we studied, but none of the cultures showed any growth. In the literature there is no evidence of the recognition of a blood-borne microbe in this disease.

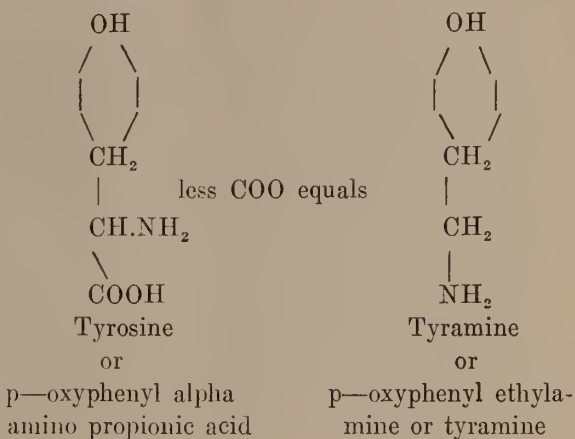
The adrenaline reactions and also the eye, the skin, and the blood pressure symptoms, suggest the possibility of poisoning by some toxic amine or by a number of toxic amines. This surmise is further activated by the fact that in epidemic ergotism more than one-fourth of those affected, especially the adolescents, present grave mental symptoms resembling dementia præcox.⁸

Although Ross,⁹ of Kankakee, showed that indolethylamine was catabolized by dementia præcox patients in quantities four times as great as in the healthy, the fact that the blood pressure in most dementia præcox patients is low, suggested the possibility that histamine was the most potent toxic amine in dementia præcox. Dr. Julius Retinger found this amine in the stools of the patients but not in the stools of other patients, nor in those of healthy persons.

Granting for a moment that this venomous histamine is found in the stools of dementia præcox patients, it remained to determine why this amine was there and not in the stools of healthy persons.

The origin of many of the toxic amines is well known and tyramine is easily prepared by heating tyrosine in a partial vacuum at a temperature

of 270° C. The process is represented by the following formula:



Histamine on the other hand is prepared by submitting histidine to the action of one of the colon bacilli growing at a temperature of 37° C. under anaerobic conditions for a period of five days. This particular microbe has been named *Bacillus aminophilus intestinalis*. B. & B.

Bertrand and Berthelot did not find the *Bacillus aminophilus intestinalis* in the stools of healthy persons. However, Mellanby found this bacillus in the colons of most men, of mammals, of birds, and of amphibia.¹⁰ It did not therefore seem likely that the bacillus was specific and found only in the colons of dementia præcox patients. My equipment did not permit me to make examinations to determine this point. I assumed rather that the conditions were peculiar to those patients favoring their growth. We sought other causes for the presence of histamine in the stool.

It is remarkable how one finds a topic of dominant interest illumined by accidental experiences. We found that adrenaline had been used to relieve the pain of gastric crisis of tabes. Finding a patient with this condition at the County Hospital in the service of Dr. G. B. Hassin, we were allowed to try the remedy and study the patient. He was relieved instantly by the injection of 0.5 c.c. adrenaline 1:1000 (Parke, Davis & Co.) into the deltoid. This was repeated and in the stool Dr. Julius Retinger found the toxic amine, histamine.¹¹ When this patient came into the hospital a second time with gastric crisis, we again tried the adrenalin injection with equal success. At this time also the injection seemed to relieve some intestinal spasm and a whistling was heard in the abdomen of the pa-

tient as the exhausted patient went to sleep. The whistling and bubbling continued for fifty minutes until the patient awoke with pain.

This experience led me to study the motor efficiency of the alimentary tract in dementia præcox. Dr. E. Blaine, of the Cook County Hospital, and Dr. Max Hubeny have kindly lent me their assistance in studying this subject. The findings were revolutionary to our preconceived notions.

The barium test meal has now been given to more than twenty dementia præcox patients. The results upon the whole are as follows:

1. In only one stuporous patient did the tail of the meal fail to reach the cecum before the six-hour seance.¹²

2. In no case did the tail of the meal leave the cecum before the sixty-hour seance and in only two cases before the 120-hour seance. In three cases the test meal had not left the cecum at the end of ten days.

3. The meal did not lag in the distal colon or sigmoid, which were usually empty and well distended with gas.

4. The sphincter of Cannon was sharply marked in every case and was firmly contracted as in spasm. In two cases it was possible, by manipulation under the fluoroscope, to press small masses of the cecal contents through this sphincter as bacilli twice as long and the diameter of a three-grain capsule.¹³

5. That portion of the transverse colon between the hepatic flexure and the sphincter of Cannon harbored the tail of the barium meal for the longest time and in half the cases was shown by massage and fluoroscopy to be looped as if by hypertrophic activity.¹⁴

6. The cecum in three patients that have submitted to appendicostomy was found to be thickened, in one case to the thickness of the cheek.

Thus we find in the cecal delay abundant time for the development of the toxic amine, histamine, from the amino acid histidine, as the result of the growth of the *Bacillus aminophilus intestinalis*.

It still remains for us to show what arouses this spasm of the sphincter of Cannon.

We have elsewhere referred to the analogous spasm of the pylorus and the larynx in children which are believed to be allied to tetany or spasmophilia,—namely a calcium poverty of

the blood. The calcium content of the blood in dementia præcox patients is still undetermined.

The appendicostomies which have been made were undertaken for obvious therapeutic reasons, namely, to positively accelerate the emptying of the cecum, but these openings have given approach to the contents of the cecum. Although we have not much to report, we have undertaken to determine the quantity of residue poured into the cecum after a standard meal, the proportion of dialyzable substance, its toxicity, its pressor power, and the relative proportions of the histidine, the tyrosine, and the tryptophane on its entrance into the cecum. This time-consuming work ought to be carried on with synchronous bacterial studies which are beyond our reach.

However, as clinical men, you will be most interested in the results of the three appendicostomies which were made more than eight weeks ago. All three boys are indubitable dementia præcox patients of less than three years' duration.

BEFORE IRRIGATION.				
	Duration of the Disease.	Blood Pressure.	Abderhalden Reaction.	Weight.
Egan	.....2 years	80	++	82
Duggan	.....3 years	90	++	85
Hough	.....2 years	80	Not made	125
AFTER SIX WEEKS OF IRRIGATION.				
Egan	.....	118	++	130
Duggan	.....	110	++	196
Hough	.....	...	....	132

Thus far our researches have given evidences that cannot be questioned of the potency of cecal irrigation to raise the blood pressure to normal and encourage an increase of weight. The mental conditions are said to be improved, though such improvement is a matter of opinion only.

If, then, by direct toxemia from the venomous histamine some of the symptoms of dementia præcox can be explained, it is plainly indicated to us, and it should be felt as a duty, to still further pursue this significant lead.

1. The condition of the blood should be studied to determine the calcium and natrium content, and the basis of spasmophilia that might account in part for the spasm of Cannon's sphincter.

2. A group of dementia præcox patients with appendicular stomas should be placed on a measured diet and during the five-hour interval after each meal the cecum should be emptied with a Sprengel pump of all that passes the ileocecal

valve. Thus the presence or absence of the toxic amines in the ileum could be discovered in the dialyzate with the Dale apparatus even to 1 in 100,000,000 parts. It would also be possible to incubate the cecal contents and obtain the histamine in larger quantities. The separation and estimation of the several amino acids should also afford some further clues to the radically different symptomatic manifestations by different dementia præcox patients.

3. The effect of remedies taken by mouth upon the toxicity of the discharges from the ileum into the cecum could be studied in the same manner.

4. The action of the liver upon indolethylamine has already been demonstrated. The same cannot be said of the action of the liver on histamine. Allan Eustis' experiments with the buzzard liver are not conclusive, but they are very significant.¹⁵ The fact that dogs tolerate large doses of histamine and that the theoretical product (urocanic acid) of histamine metabolism has been found in the urine of two dogs,¹⁶ suggests that some use might be made of dogs' livers and dogs' blood serum in dementia præcox, and rational research might point out the way to do this.

5. That there is an anaphylaxis with so simple a toxin as histamine, our experience with asthma suggests. We may find at last that the relations between asthma, cyclic vomiting, and dementia præcox are etiologic, and our experience with one may guide us in the study and treatment of the others.

6. The alcoholic (Korsakoff) psychosis is probably dependent not on the ethyl alcohol, but on some contamination, possibly on some toxic substance manufactured in the body from the harmless ethyl molecule. So it may be with histamine. Its action on the brain may be due to yet unknown, secondary, toxic products.

BIBLIOGRAPHY.

1. Elliot, T. R.: Pathological Changes in the Adrenal Glands. *Quart. Jour. Med.*, 1914, viii, 47-89.
2. Todde, Carlo: Le ghiandole sessuali maschili nelle malattie mentali. *Sperimentale*, 1913, lxvii, Suppl. iv, p. 255. *Ricerche sulla funzione e sulla struttura della ghiandola sessuale maschili nelle malattie mentali*. *Riv. sper. di Freniat.*, 1913, xxxix, 696.
3. Blin, Georges: La Démence Précoce. Manifestations oculaires considérations sur la pathogénie. 1905, Paris, J. B. Baillière & Fils, 241 p.
4. Kahlmeter, Gunnar: (English translation by Charles O. Carlstrom.) Blood Examinations of a Case of Dementia Præcox With Periodical Variations. *Chi. Med. Rec.*, 1915, xxxvii, 206-215.
5. Lundvall, H.: Blood Changes in Dementia Præcox and Artificial Leucocytosis in Its Treatment. *Am. Jour. Clin. Med.*, 1915, xxii, 115-120.
6. Wallis, L. R. M.: On Sulphaemoglobinemia. *Internat. Cong. of Med.*, Lond., 1913, xvii, *Chem. Path.*, p. 61-69.
7. Gibson, G. A.: Additional Observations on Microbic Cyanosis. *Quart. Jour. Med.*, 1907-8, i, 29.
8. Blin, Georges: 1. c.
9. Kolossow, G. A.: Geistesstörungen bei Ergotismus. *Arch. f. Psych. u. Nervenkrankheit*, 1913-14, liii, 1118. *Eng. trans. in Chi. Med. Rec.*, 1916, xxxviii, 271.
10. Schmidt, W.: Adrenalin unempfindlichkeit der Dementia præcox. *Münch. med. Woch.*, 1914, lxi, 366-368.
11. Neubürger, C.: Ueber die Wirkung subkutaner Adrenalin-injectionen auf den Blutdruck bei Dementia præcox. *Arch. f. Psych. u. Nervenkrankheit*, 1915, lv, 521-526.
12. Barger, George: The Simpler Natural Bases. 1914, N. Y., Longmans, Green & Co., 215 p., v. p. 24-32.
13. Kolossow, G. A.: 1. c.
14. Gurewitsch, M. J.: Ueber die Ergotinpsychose. *Zeit. f. d. gesam. Neur. u. Psych.*, 1911, v, 269-292.
15. Jahrmaerker, M.: Zur Oberhessischen Ergotismusepidemie von 1855-1856. *Zeit. f. d. gesam. Neur. u. Psych.*, 1911, v, 191-215.
16. Siemens, Fritz: Psychosen bei Ergotismus. *Arch. f. Psych. u. Nervenkrankh.*, 1880-81, xi, 108; 366.
17. Ross, E. L.: The Source of Urinary Indol-acetic Acid in Two Dementia Præcox Patients. *Arch. Int. Med.*, 1913, xiii, 112; 231.
18. Berthelot, A., & Bertrand, M.: Recherches sur la flore intestinale. *Acad. d. Sci. d. Par., Compt. Rend.*, 1912, cliv, 1643; 1826.
19. Mellanby, E.: An Experimental Diarrhea and Vomiting of Children. *Quart. Jour. Med.*, 1916, ix, 165-215.
20. Holmes, Bayard: The Adrenalin Reaction in Gastric Crisis of Tabes and the Significance of Betaminazolyethylamine in the Feces. *Lan.-Clin.*, 1915, cxiv, 392-394.
21. Holmes, B., and Retinger, J.: Clinical Dementia Præcox Without Known Disturbed Periods, Scant Adrenalin Mydriasis and Diminished Pressor Adrenalin Reaction. Typical Defensive Perment Reactions, Cecal Stasis, Large Load of Betaminazolyethylamine in the Stool. *Chi. Med. Rec.*, 1916, xxxviii, 60.
22. Holmes, B., and Retinger, J.: Some Relations of the Three Lipoid-containing Organs and Their Condition in Patients With the Clinical Diagnosis of Dementia Præcox. *Ill. Med. Jour.*, 1916, xxix, 12-19.
23. Holmes, B., and Retinger, J.: 1. c., *Ill. Med. Jour.*
24. Eustis, Allan: The Detoxicating Effect of the Liver of Cathartes Aura Upon Solutions of Betamidazolyethylamine. *Biochem. Bull.*, 1915, iv, 97.
25. Jaffe, M.: Ueber einen neuen Bestandtheil des Hundeharns. *Ber. d. deut. chem. Gesel.*, 1874, vii, 1668 and 1875, viii, 811.
26. Hunter, A.: On Urocanic Acid. *Jour. Biol. Chem.*, 1912, xi, 537.

VACCINE THERAPY IN THE TREATMENT OF MODERN DISEASES.*

FRANK M. WOOD, A. B., M. D.,
CHICAGO.

1. The Essentials of Success in the Practice of Vaccine Therapy.
2. Summary of the Main Facts of Vaccine Therapy.

I. THE ESSENTIALS OF SUCCESS IN THE PRACTICE OF VACCINE THERAPY.

There are certain difficulties to be met in the practice of this branch of therapeutics, which are peculiar. They will beset the practitioner who takes up this study and it is very desirable for him to know them from the beginning and thus be able to surmount them successfully.

It is one of the purposes of this paper to dis-

*Read before the Ogle County Medical Society, May 3, 1915.

cuss these difficulties, and, if possible, be of some assistance in overcoming them.

The first great essential to success is to have the desire for research, the scientific mind. This mind has for its great essential characteristic the unquenchable desire to know. The practitioner who will succeed here must become master of all the facts now open to scientific medicine, especially those facts concerning immunity, which have been brought out since Koch discovered tuberculin. The attempt to set down these facts in their practical relation to vaccine therapeutics has been made in several excellent works on immunity by Wright, Ehrlich, Ricketts, Wolf-Eisner and others. These should be mastered by constant application to insure success in this work. Further than this, some of the conclusions arrived at here may be proven in the future not to be the facts by more careful research. We must, therefore, not consider our present knowledge as the last word on immunization, but have our minds open to new discoveries. We can only consider our present knowledge of this subject as fragmentary. Further, we must not start with the conclusion that the vaccines are cure-alls. We have not come to the day when the remedia sterilizans magna has been realized, but we are approaching very slowly that day. Our knowledge of physiology and pathology, cellular and intra-cellular, is so fragmentary that we are still groping in the dark. We may, however, use with care the knowledge already gained.

The use of the vaccines is almost universal on the part of the profession. Clinical evidence of their value is overwhelmingly convincing. The part of the up-to-date physician is to equip himself to understand their use. This can only be done by beginning now to examine every case which comes under his care bacteriologically. This will be a huge task for the average busy practitioner. He will need to equip his own laboratory. This task is assuredly not insurmountable and may be readily met by the progressive physician. It is assuredly being met by many of the splendid body of scientific research workers in America.

The busiest man will, of course, seek the bacteriologist expert as an assistant, but to succeed he himself must tread the well beaten path of getting acquainted with the bacteria. The next step is to begin at once to use the vaccines. That he may assure himself of their value, and not

become discouraged at once, it is well to begin with acute infections. Many a man has given up the use of the vaccines after beginning with an old chronic case of infection, which, by repeated attacks, had already gotten into a state of chronic negative phase, because of the absorption of toxins from a large focus, open to the blood and lymph streams. Such cases have to be studied by the expert. The best way to begin is with a case of acute infection of the respiratory tract, say with a case of acute tonsillitis. Streptococcus vaccine, either polyvalent stock vaccine or autogenous, will usually act as a specific in these cases, and the severity of the attack will usually be over in 12 hours.

When one has adopted these methods of research and is already applying the vaccines in his practice, he may still fail of success for two reasons: First, because of the attitude of the ignorant members of the profession toward the use of vaccines. Second, because of the attitude of the people toward the use of vaccines.

The Opposition of the Profession. The attitude of the profession toward the use of vaccines has been more or less hostile up to the present time, but it has become a gradually retreating hostility under the stress of wide and successful clinical application. Ohlmacher told the story of the cure of a case of bladder infection in a physician having locomotor ataxia in 1906. The first case in which I applied them was also in that of a man over fifty years old, who had a chronic bladder infection caused by the typhoid bacillus. This case was cleared up very remarkably under twelve inoculations with the auto-vaccine.

The mental effect of this case was certainly enough to convince the most skeptical, as I had started with one of the worst cases with which we meet. This case was reported at the Macoupin County Medical Society, in 1906, in my first paper on vaccines. This encouraged me to try the vaccine on my own chronic nasal catarrh and follicular tonsillitis. A like good result made me certain that there was no danger in the use of the vaccines, and I began to use them freely on my patients. Ten years of their constant use, during which I have given thousands of inoculations, sometimes more than 100 a week, has increasingly convinced me of their value. The knowledge thus gained has become invaluable in the treatment of disease.

The question which will arise as a bogey to the average physician is: *Are the vaccines dangerous?* My answer to this question is: I have never seen a death which could honestly be attributed to their use, with the one exception of the unwise use of tuberculin. The best answer to this question is: *The vaccines are not dangerous, if used with the same degree of knowledge and care which physicians apply to the use of other remedies which are toxic in character.* We must not lose sight of the fact that the old heat-killed type of vaccines are toxins. They contain toxins of the germs which cause the infection. We may avoid even the use of a minimum of toxic substance by using the non-toxic vaccines. We must learn to use them with knowledge and circumspection.

The Opposition of the Public. The fear of the injection of serum or vaccine has been largely broken down by the success of diphtheria antitoxin. There is still that aversion to the use of the needle, but that also will wear away, when the cure of those cases which resist other methods is assured by the actual knowledge that it is possible.

Often have I had sent me a case of chronic infection by a fellow practitioner which he had failed to cure by the usual methods. At one time I had two such cases referred me by Dr. W. H. Bohart, at Englewood Hospital in Chicago. One was a case of ferunculosis, with a continuous crop of 180 boils. This was cured by five inoculations. The next case was one of chronic burrowing abscess of the leg, posterior to the knee. This was cured and healed completely under twelve inoculations, in spite of the fact that he had been under the care of one of the best surgeons, and in the hospital ninety days prior to the use of the vaccine. Another case came to my notice recently, which shows very graphically both the attitude of the laity and the average physician to this kind of treatment, until convinced by actual trial.

A friend inquired with reference to the treatment of rheumatoid arthritis with vaccines. I replied that I had recently seen Rosenow, and that he reported some favorable results in these cases by isolating the etiologic bacteria from the lymph glands in close proximity to the joints. I said that the mouth and throat should be examined and a vaccine from any foci located there tried out, to see if it would help.

My friend said he would see his friend and ask him to try it. He did so, and even offered to stand the

expense of the vaccine and five treatments, if his friend would try. The friend at once consulted his wife, who dissuaded him from doing so, and advised him to keep on with his regular medical treatment, his family physician advising the same. He lost weight, went down, became anemic. Normal weight 186, now 138 lbs. He went to Florida, and from physician to physician. He finally went to Mudlavia. Light treatment, x-rays and baking the swollen joints, were all tried to no avail.

He had the mud baths at Mudlavia and during his stay there he contracted a cold and a cough. The attendant was a young physician who was then treating a series of cases of whooping cough with a vaccine. He said you may have whooping cough. I will give you a dose of whooping cough vaccine, and he did, but the cough was not any better. Then he said, I will get a culture from your throat and send it to the Chicago Laboratory for an autogenous vaccine, which was done.

This vaccine was used for 5 doses and the patient lost his cough, improved in strength, gained in weight; but there was no improvement in the general condition after that, in fact, he did not seem to be quite so well. So the physician said, I believe there is trouble with your teeth, after examining the mouth he advised that an x-ray be taken to determine any trouble there. This was done. Three abscesses were found. The teeth were removed and the man regained his health. He now weighs 175 lbs., nearly normal weight. Still some stiffness in the joints, but he is practically a well man, except for the deformity caused by the disease. Both the physician in charge at Mudlavia and the wife of this man afterward stated that the harmful effects of the disease might have been avoided by early use of the vaccine.

The prejudice against vaccine treatment is broken down by actual success in such cases as this.

Honest progress will establish its value in overcoming infections, if the work is done carefully and efficiently.

One case of rheumatism cured in a community makes certain the call from the many who suffer. My greatest successes have been in rheumatism, neuritis, tonsillitis, gonorrheal rheumatism and nasal infections, with infections of the middle ear closely following.

There is one other drawback to the practice of vaccine therapy, and that is that it does not harmonize with the ancient practice of dosing at regular intervals, to which the people have become used, both by teaching of the physician and the druggist. The crusade against patent medicines and secret remedies, and the more general information of the public, as to the dangers of the drugging habit, is gradually breaking down

this tendency. The researches of Ehrlich, which lead toward the actual remedy which will kill the parasite, using the remedy only in such doses as do not work harm to tissue cells, is another factor which tends to prevent the unintelligent use of remedies. The day of empirical medicine is passing, and will pass when the public becomes informed as to these advanced steps in therapeutics. These difficulties are being met by the education of both profession and public.

The value of the vaccine is being proven by daily use. Extravagant claims are being set aside, and vaccines will ultimately find their proper place in the prevention and cure of disease. The people are being won to their use by the actual results obtained. *Not a single issue of any reputable medical journal has appeared during the past five years, which has not declared the vaccines valuable in some new field.*

Many a case will appeal to the immunologist, in which infection is latent. Often swollen glands will respond to the use of the stock streptococcus or staphylococcus vaccine, when no germs may be obtained from an original focus, which has already closed.

Puncture wounds also frequently baffle us, when we are sure the streptococcus has entered, from the red streak, which shows the course of the infection up to the arm or leg. In such a case it is well to inoculate with a polyvalent streptococcus vaccine at once. This was done in a case of puncture of the foot in a man past fifty years of age. The foot had been punctured the day previous, by a carpet tack. The tack passed through a soiled stocking, and the wound closed in a short time. When I saw it the foot was swollen, and very painful. The swelling was localized in the plantar space, beneath the fascia. There seemed to be no great extension or streaks of lymphangitis. I therefore concluded that there was an infection with the staphylococcus. One large dose of staphylococci, 250 million, caused the rapid recession of the inflammation. The wound opened, but no pus found. *A rapidly developing adenitis in any part of the body should be treated at once by a prophylactic dose of the vaccine containing staphylococci or streptococci.* In case this fails, it may be necessary to puncture the glands, and obtain some of the lymph for culture, but such efforts often fail to give the cocci, since the puncture

brings fresh blood, which quickly kills the few cocci obtained.

The repeated use of the pus cocci vaccine will usually be effectual in such cases. Culture from any neighboring suspected foci must not be neglected. We may best sum up by saying that vaccine mixed with gray matter is successful in combating infection and saving life, but vaccine minus gray matter is worse than useless; for, used improperly, they act as poisons and lower the resistance to the invading bacteria, thus aiding in the spread of the very harmful effects which we are trying to combat. Efficient knowledge, gained through instruction of the highest type, is necessary that the profession may do this work intelligently. It should not be left to the commercial houses, the experimenters and the quacks. The medical schools must provide instruction in clinical vaccine therapeutics.

2. SUMMARY OF THE MAIN FACTS OF SPECIFIC THERAPY.

Specific therapy is the application of remedial measures which actually cause the death of the specific agent causing the disease. Quinine, salvarsan and mercury are specific remedies, since they are known to destroy animal parasites, amebae, spirochaetae and bacteria in vivo. The present trend is to fix the value of every remedy employed as to its power to destroy the infecting agent, without harming the body cells. Even more than this is found in these remedies, for they even stimulate protective processes. The well-known power of quinine and arsenic to stimulate leucocytosis is evidently one of the most potent factors in making these remedies effective.

There are not many diseases which are still outside the field of specific therapy. Cancer still resists every attack. The causal agents of measles and yellow fever are still unknown, and these diseases have not thus far been successfully prevented and treated by specific agents, but they, too, are no doubt of bacterial origin.

Recently, cows have been infected by measles and soon we may be able to include it with other diseases in which we know the cause. The infective agents which have been successfully combated by specific therapy are the staphylococcus, streptococcus, B. diphtheria, B. tuberculosis, the glanders bacillus, the gonococcus,

diplococcus intracellularis meningitis, micrococcus catarrhalis, *B. Friedlander*, *B. coli*, and the whole intestinal group, including *B. typhosis*, dysenteriae and plague. Even leprosy is now being successfully treated by bacterial products. *Diplococcus rheumaticus* has now also been identified and is effective in a vaccine, *B. Epi-lepticus* as well.

Those diseases in which the causal agents are still unknown or disputed, but which are successfully treated by specific agents, are scarlet fever, eczema, pertussis and infantile spinal paralysis. No attempt here is made to have this classification exhaustive, since the status of beri beri as an infection is in doubt, and the parasitic blood diseases from filaria, sleeping-sickness, hook-worm and trichinae are not included, nor are the infections due to streptothricae or actinomyces included.

Nearly all these lower animal and vegetable forms secrete or excrete exotoxins, or substances now known as aggressins, which are poisonous to human cells and secretions. Others still produce substances known as endo-toxins, which are inside the bacterial body and only seem to be liberated upon their solution or lysis. Such are the various cocci. Certain bacilli form large doses of soluble toxins, such as *B. diphtheriae* and tetani. Certain bacilli of the intestinal group produce toxins, but not so freely soluble, but liberated, both during the life of the bacilli, into the blood and lymph streams, and also more freely at their lysis, which seems to occur freely during the disease, such as *B. coli*, *B. plague*, *B. dysentery* and *B. typhosis*. In opposition to these various toxins, the cells and blood forming organs, bone marrow, lymph glands and spleen, all, aid in the formation of antitoxins for toxins and bacteriolysins for the bacteria which undergo lysis. These include all known species, when they are affected by their specific antigen, and the proper amount of complement is present in lymph and blood serum. These same also form agglutins, and the pus forming group, form opsonins, which make them phagocytatable. Passive immunity may be brought about by the normal action of all these resisting forces against these invading forces. Active immunity is sought by the use of the various anti-bacterial sera and vaccines.

The elaborate standardization of tuberculin is very necessary, on account of its extreme toxicity.

The serum for diphtheria and tetanus have been brought to such a high state of dependableness that the confidence of everyone has been secured. Not so with the various tuberculins. An international board of standardization of these products would be very desirable, and will, no doubt, be realized, since tuberculin has been in the hands of the charlatans. Bactericidal sera have not proven dependable, since, as Wright says, they are but dilutions of bacteria by animal serum, and cannot be properly standardized. Bacterial vaccines are dependable antigens. They can be standardized and are valuable agents for the destruction of bacteria. Care must be taken in their use, not to overdose, or to give them at improper intervals, thus flooding the body fluids with harmful overdoses of bacterial toxins, which are liberated at the lysis of the bacteria thus destroyed. The non-toxic form of bacterial vaccine will aid in the more accurate control of the destruction of the invading micro-organisms, with less toxemia and more rapid immunization. This danger may be also overcome by care in watching symptoms and the use of serum tests and blood examinations, including estimations of leucocytosis and the opsonic index and the use of small, properly spaced doses of the vaccine.

The various immune sera have been successfully administered subcutaneously, intravenously and per rectum. They are useless by the mouth, since they are almost entirely digested in the stomach. The best method is by subcutaneous injection, though in some grave cases the intravenous route may save life, as absorption is immediate. The bacterial vaccines have been successfully administered by the subcutaneous route, intramuscularly and by mouth. The intravenous method is more rapid and accurate.

It has been demonstrated that some of the antibodies are elaborated in the lymph glands and spleen. It will be found more effective when using the vaccine hypodermically to seek the vicinity of the lymph glands, when injecting the antigen. It is a valuable procedure to at least inject the antigen in the lymph stream which bathes the infected part. Certain unfavorable reactions may take place as the result of the injection of antigens. These have been called allergic or anaphylactic reactions and serum sickness, since they were first recognized after a second injection of antitoxic serum. When the reaction period from the initial injection is com-

plete, a second injection causes partial digestion of bacterial proteid and produces allergy. Care is necessary to give the antigen before the high tide of immunization from the first dose has been completed. This is done by giving the doses of antigen, at the height of, or just before the high tide of antibodies is reached from the former dose. *Do not allow a period of fourteen days to pass after injecting any antigen.*

The cells of the animal body are all sensitive or irritable to outside stimuli or toxins. It is this property which makes immunity possible. The direct local effect of the administration of an antigen is, that the cells surrounding the point of the inoculation are stimulated to a high state of irritability or local allergy. They soon recover, however, since other living cells come to their aid. A few local cells may die, but the remainder are stimulated to an overproduction of substances which we now call antibodies.

These substances have been investigated and some few of their properties are now known. Agglutinins for some bacteria are formed. They cause the bacteria to adhere and hamper their growth, but do not seem to kill them. Agglutination seems to be a preliminary process to further the lysis of the bacteria. It is very like the extrusion of a part of their protoplasm through the ectosarc; the ectosarc itself being finally destroyed by the completion of the lytic process. The extruded substance is gummy and causes the bacteria to adhere. But there is also the action and inter-action of antibody, amboceptor and complement involved in this process, and agglutination seems to be an accompanying phenomenon. Opsonin is another of these antibodies, the function of which is to prepare the bacteria for phagocytosis. The complete lysis, similar to digestion, is completed in the bodies of the phagocytizing cells. The necessary ferment is present in the phagocytizing cells. The complement necessary for this lysis seems also to be supplied by the blood serum, but some assign this function also to the leucocytes.

In case of the intestinal group of bacilli this lysis occurs very rapidly in the serum itself, upon the introduction of the antigen. This latter has been demonstrated by injecting the *B. typhosis* in the peritoneal cavity of the guinea pig, and following this up, after multiplication of the bacilli, by a dose of the antigen. The lysis of

the pus forming organisms, bacilli of the diphtheria group (like *B. tuberculosis*, *proteus*, pseudo-diphtheria and *bacillus diphtheria* itself), takes place with greater difficulty, because of a more resistant ectosarc, and, therefore, requires the digestive intermediary of the living leucocytes. It is thus known that the immediate effect of the injection of any antigen is a large overproduction of these protective substances which cause bacteriolysis. The after effect which develops during the excursion of the reaction is the flooding of the blood and lymph streams with this excess of antibodies. Now, when these antibodies reach the original focus, in which there are hosts of the infecting bacteria, the result is the lysis of great numbers of these bacteria, and a corresponding increase in the output of antibodies. This process is continued until all the invading bacteria are destroyed by digestion. Repeated doses of the antigen aid in the completion of this process, up to a certain point, beyond which we may not go without the danger of exhausting the power of the cells to produce antibodies.

The perfect aim is the complete digestion of the invading bacteria. Imperfect digestion means toxemia and continued infection. A perfect result will be obtained by the opportune injection of the vaccines, to stimulate this digestive process to completion. The use of immune sera and vaccines as prophylactics in diphtheria, tetanus, typhoid and scarlet fever is now a valuable aid in reducing the number of these infections and cutting down their mortality. The use of the vaccines in limiting the progress, and even prior to the inception of infection in wounds and punctures, is a valuable aid in preventing the spread of these infections. Septicemia after wound infection should be made impossible by their wise use. The use of vaccines to prevent colds and their sequelae in bronchitis and pneumonia, will aid much in limiting the evil effects of these infections.

We do not hesitate to maintain also that the use of the vaccine against those acute infections of the respiratory tract will materially reduce the death rate from pneumonia; for nearly all these cases terminate either in bronchitis, bronchi-pneumonia, or lobar pneumonia. The reinfection or persistence of the pneumococcus in any part of the respiratory tract predisposes to pneumonia. The use of the vaccine is the only

reliable method at our disposal for destroying the pneumococcus in these surface infections of the mouth, nose, throat, ears, larynx, trachea, bronchi and alveoli. Let the profession avail itself of this weapon with the purpose of cutting the death rate from respiratory infections. Tonsillitis, both acute and of the recurrent variety, can be prevented by using the corresponding vaccine. *Every dose of antigen used properly raises the serum content in antibodies and increases resistance.*

The streptococcus, staphylococcus and *M. catarrhalis* will be found in most of these infections. It will be best to establish an immunity to all three, as infection with these bacteria is most common. School children are best immunized by administering several doses of such vaccine at 5-day intervals, so as to prevent epidemics due to infection by these germs.

Gonorrheal rheumatism may be prevented from developing, after acute, sub-acute gonorrhea, and in gleet, by administering immunizing doses of the vaccines at 10-day intervals. Typhoid fever is now effectively prevented by inoculating with 500 million typhoid vaccine, in three inoculations, at 10-day intervals. It will become universal as a preventive of typhoid epidemics in all cities, and in all congestion of population. Non-toxic typhoid vaccine is curative of the disease when used intravenously.

There is still room for accurate research in this therapeutics. Enthusiasm is necessary, but it should be tempered with wisdom in judging results. The vaccines will often fail, when the nature of the infection is unknown and the extent of the focus obscure, because of the too rapid absorptions of toxins, which rapidly poison the higher nerve centers, thus bringing on rapid dissolution, but care in studying such cases will often bring victory.

The treatment of such chronic skin infections as acne and eczema should be studied carefully, as such cases usually require at least a year of the most painstaking effort, and a perfect understanding of the problems of immunity.

It is well to remember that no two cases react exactly alike to any one antigen; that is, the constitutional element or natural resistance in every case is a variable element. It is undetermined at the start, and we must determine, if possible, what it is, by feeling our way, in the use of every antigen. This may be accomplished by

employing small doses at first. We may gradually increase them to the point of tolerance, if need be, to produce a maximum of antibodies, and by flooding the foci eradicate the infection. The aim in writing down in the works on vaccine therapeutics the doses given has been to give the average dose, but this, it must not be assumed, is at all arbitrary, for the intention is to give an approximate idea as a guide in the individual case.

It may even be found that the dosage will vary widely from that given in certain cases. We have on record a case of mixed gonococcus and streptococcus, pelvic peritonitis, in which doses of the mixed vaccine of 5 billion cocci were necessary to produce complete recession of the infection.

We must, however, adopt some standard, and these dose tables are attempts to arrive at such a standard of dosage for the vaccines. The wise will use them only as guides. Supplementary investigations will improve this standard, and the results of the many who use the vaccines will be added from time to time. As our knowledge of the response of the human system to the various antigens becomes more perfect, we may expect more reliable guides. The knowledge of the etiologic agents themselves is still incomplete, the strength of toxin varies with the virulence, and the virulence varies according to the recency and frequency of passage, and according to the soil of the individuals through which it has been passed. This forces us to always employ the autogenous vaccine, using stock only as a prophylactic, till autogenous is ready.

New etiologic agents will also be discovered and new infections overcome, as careful research work finds its rewards, and these will also be recorded in the future.

The dose of the vaccine is not the dangerous factor; for the patient is, in every case in which infection actually exists, already absorbing toxins of an amount far greater from the focus, than could possibly be administered in huge doses of the vaccine. A greater number of bacteria by billions are generated alive from the focus hourly than is ever given, even in many doses of the vaccine. This is the reason that great variations in dosage in practice have never been followed by any bad results. In the first experiments with typhoid vaccine, Wright himself advocated the injection of an entire culture of typhoid bacilli, and with no bad results, save a very

severe reaction, but more permanent immunity for the patient. *The interval of administration is the important consideration. Administer the vaccine only at the intervals of improvement.*

The fact that the various bacteria vary much in virulence will require that in each case the initial inoculation be small, in order to determine the toxicity of the vaccine. The toxicity will also vary much with the method of preparation, whether killed by heat or antiseptics. The newer method of preparation by the use of digestive agents will eliminate excess toxins, and the dose of the non-toxic vaccine may be correspondingly increased. The condition of the serum of the patient in various prolonged infections may make a cure with vaccines difficult or impossible. Complement for the invading bacteria may be exhausted or completely lacking. Certain bacilli are natural agglutinators, typhoid, colon, dysentery, cholera, glanders, pyocyaneus and *B. enterides* are in this group. Certain cocci and bacilli are now known as forced agglutinators; staphylococci, *M. catarrhalis*, gonococci, *B. diphtheriae*, and *B. tuberculosis* are in this group. Certain others have not been demonstrated to form any agglutins in the human system. They are Friedlander's bacillus and *B. xerosis*. This ability to form agglutinins seems to depend on the variations in the thickness and in the character of the bacterial ectosarc. The variations in the number of natural and immune antibodies in the serum of different individuals will also be a factor which will determine the variation in the severity of reaction to the vaccine. So that it will be readily deduced from what has been said, that each patient must be investigated separately as to his power to resist toxins of his infecting bacteria. No more important problem in therapeutics exists than this. It often calls forth the best energies of the immunizer in painstaking research to finally solve it.

BRIEF SUMMARY OF RESEARCHES CARRIED OUT DURING THE PAST YEAR.

Non-Toxic Bacterins. We have carried on continued experimental work during the past year with the purpose of obtaining more perfect bacterial vaccines, and with success. The first work was done with the staphylococcus, and we prepared vaccines from both kinds of staphylococci, which we were able to use directly into the venous circulation and in doses as large as

5,000,000,000 cocci. The report of this work has been given in the August, 1916, number of the *Chicago Medical Recorder*. Later we experimented with all the common pathogens, including the streptococcus, pneumococcus, gonococcus and micrococcus catarrhalis, and the pathogenic bacilli. We found that by similar manipulations to those used in removing the toxins from the staphylococci, we were able also to remove them from these bacteria, and to prepare more effective vaccines. We have reserved detailed reports of these experiments for future papers.

Tuberculosis. We are now testing out the same process on the tubercle bacillus, and are using a new non-toxic tuberculin, which we call N. T., with favorable results. We shall also reserve the detailed reports on this preparation until the clinical tests are complete. At the present time this tuberculin is being used in different types of tuberculosis, with progressive improvement. The inoculations are made intravenously.

Asthma and Hay Fever. During the past hay fever season we prepared an anti-pollen vaccine to which we added a new coccus, found often in these hay fever cases, and we found this combination to be successful in aborting every case of hay fever in which it has been tried. Asthma has yielded a new etiologic agent, which we are now using in a vaccine and with markedly beneficial results. The detailed report of the isolation and experimentation with this organism must necessarily be given in a future paper. Thus far we have treated the different types of asthma by the intravenous inoculation of 25,000,000 of the organism in a vaccine. The acute attack responds at once by amelioration. The difficult respiration and wheezing ceases within twelve hours. This organism is also found in bronchitis and in one type of ulceration of the larynx. The use of the vaccine in bronchitis clears the bronchi of this organism and stops the attack. In nephritic asthma the organism is found in the urine, even the large granular casts contain nests of the organism. One case of nephritic asthma has been rapidly relieved with apparent cure, by using the vaccine from this organism, found in the urine. Further study of this organism will determine its etiologic relation, but the results thus far obtained are very interesting.

Lues. Having succeeded in the preparing of vaccines which are less toxic and more effective

in the many acute infections, and with some suggestion of success in the use of a new tuberculin of this type, it occurred to me that it would be advisable to test out the effect of the *Spirochaeta pallida* in a vaccine. With the same method of procedure we have prepared luein. The *Spirochaeta pallida* certainly produces antibodies, and the resistance of the tissues to this organism is marked, hence the logic of the use of such a vaccine is just the same as that for the use of a tuberculin. This product has not and must not be used in any case, unless it is that of demonstrable syphilis, both by Wassermann test and by positive lesions and symptoms. The product is sterile, non-toxic luein, and is used intravenously. We have used it with benefit in cases of chronic syphilis. It may also be used for diagnostic purposes by hypodermic injection, and produces a similar lesion to that of luetin when so used. No severe reaction follows its use in specific cases, save a slight rise in temperature of one to two degrees and general malaise. Relief from severe pleuritic pain and gradual improvement was obtained in a case of syphilitic pleurisy with beginning ataxia. Further investigation as to the immediate effect of the use of this preparation in the various stages of the disease will determine its value and be reported later.

Ozena. During the past year Perez of Vienna reported a bacillus of a new type in ozena. Vaccines were obtained by American physicians from him and reported successful in the cure of ozena caused by this bacillus, in a 1916 issue of the *Journal A. M. A.* We have repeatedly isolated this bacillus in ozena. It produces the characteristic stinking odor always present in ozena, when grown in proper media. The use of a vaccine prepared from this cocco-bacillus has proven valuable in a series of cases of ozena inoculated with this vaccine during the past year.

Rheumatoid Arthritis. In 1914, Rosenow told me that he had isolated organisms from the lymph glands in close proximity to the joints in rheumatoid arthritis. We have since investigated every case of joint involvement as to infection found in the tonsils and alveolar abscesses. In all cases thus far treated we have isolated the Gram-negative diplococcus rheumaticus in true rheumatism and the bacillus of Schultze in rheumatoid arthritis. Two cases of this affection

are now under my care. One has responded by complete relief from all joint involvement. In this case there was marked involvement of the cervical vertebrae, and there was limitation of the movements of the neck, as well as the usual spindle formation about the finger joints. All this has disappeared under intravenous inoculation of a non-toxic vaccine of the Schultze bacillus. The second case is more acute, with marked stiffening and deformity of the finger joints. Reaction and soreness about these joints follows each inoculation and there is progressive improvement. Our experience thus far proves the value of the new type non-toxic vaccines.

209 South State Street.

SYMPTOMS AND DIAGNOSIS OF INFANTILE PARALYSIS.*

THOMAS McEACHERN, M. D.,
ROCHELLE, ILLINOIS.

During the period from July 1 to September 23, there were 648 cases of acute poliomyelitis reported to and verified by the Illinois State Board of Health. There was about 11 per cent mortality. In many respects, the morbidity itself is more to be dreaded than the actual death rate. Epidemiologists and public health authorities, guided by past experience and the laws of epidemics, anticipate an outbreak next summer which may well assume larger proportions than the recent one that has been stayed by the advent of cold weather. With this outlook it behooves us to keep an ear to the ground, as it were, to familiarize ourselves, as well as may be, with the many and diverse manifestations of this stealthy disease, whose symptoms may be as variable as the functions of the cerebro-spinal axis.

Now, I do not presume to add anything to the sum total of knowledge of the symptomatology and diagnosis of acute poliomyelitis, but wish merely that we might review together the outstanding features of this malady and to this end recite a few notes on a case recently under my observation, which in many respects was typical. Let me say, in passing, that we must avoid being dogmatic and avoid using the term, typical, in a narrow, restricted sense and to bear in mind that while the essential and enduring pathology

*Read before the Ogle County Medical Society at Rochelle, Oct. 18, 1916.

is in motor neurons of the anterior horn, the brain and cord together with their coverings may share, in a measure, the onslaught of the disease. Hence the extensive array of symptoms; the multiplicity of types, viz., abortive, common poliomyelitic, meningeal, cerebral, bulbar, polyneuritic, etc., with all shades and gradations.

Any intelligent conception of the phenomena presented and indications in a given case must be based on a correlation of the underlying pathology and resultant disturbance or absence of function. The symptoms will perforce vary according to location and degree of pathological process. Any stereotyped description cannot, of course, embrace but part of the symptoms presented in a given case. It follows that there may be much confusion and difficulty in the diagnosis of many cases and this has important bearings on the prophylaxis and control of the disease. The infected child, who is so fortunate as to present but few symptoms, and in an ameliorated form, is a greater menace to society than his less fortunate fellow-sufferer.

The following is a synopsis of the case referred to: W. Y., male, American, aged 22 years, single, no definite occupation, has been a "knight of the road" the past four years; well nourished, intelligent. Had neuritis (?) three years ago, attributed to exposure to cold while pursuing his regular vocation; prompt and complete recovery in two or three weeks. Denies syphilitic infection, has not had gonorrhea. Had tonsillitis (acute follicular) six weeks previous to present illness, sick three or four days; had been working at this time, illness necessitating loss of two days, recovery complete. Will say, however, that tonsils at that time showed changes of chronic hypertrophic tonsillitis, enlarged crypts, etc. Says he never had similar trouble before. Family history negative, except that mother died of tuberculosis.

Present Illness: Came to Rochelle from Chicago, July 16; came to my office the evening of the 17th. Says he has not been feeling well the past three days, thinks he has rheumatism; left leg feels lame and is painful, back aches, head aches severely, especially in occiput and back of neck. Upon bending neck says "it feels as if it would break"; throat feels sore. Pharynx and tonsils are injected; head feels "stuffed up"; there are no patches in throat. Temperature 101, pulse 96. Patient does not seem very ill. In view of recent history of tonsillitis and present sore throat make tentative diagnosis of rheumatic fever: general intoxication prior to localization of disease in joints. Patient is told to report next day. Following morning patient is brought to my residence, being unable to walk, left leg completely paralyzed, left patellar reflex lost, slight response in right, tenderness and pain on movement; muscles are sensitive to

pressure. Does not complain of throat today; headache and lameness in neck continues; seems apathetic; temperature 100.5. Diagnosis of acute poliomyelitis is made. Dr. Chandler of Rochelle concurs in diagnosis.

Later in the day right leg becomes paralyzed; pain increases; notice fibrillary twitching of lips; elicit same in muscles of thigh by slight pinching. Hyperesthesia becomes marked. Spine is tender. On evening of this day, July 18, patient is unable to urinate; catheterization causes exquisite pain. Soft gum catheter of medium calibre is passed without resistance, however. Vomited during night.

The hyperesthesia increases during the next day and succeeding days. Says the horses scampering in the pasture adjacent seem bent on annoying him. Attendant must move about very cautiously, else patient complains sorely of his distress. Despite the fact that place of isolation is remote from railroad 2 or 3 blocks, he seemed to have an uncanny presentiment of approaching trains; says he can feel them before he can hear them.

Passage of catheter causes intense suffering, crying aloud, even when greatest care is exercised. Preliminary instillation with cocaine as a regular procedure is unavoidable. Urine dribbles very slowly from catheter unless pressure is exerted with hand on abdomen. Bowels do not move without an enema or other artificial aid, patient being unable to aid with auxiliary muscles. Morphine hypodermically, repeated two or three times a day, is indicated for pain.

Third day of paralysis, complains of some pain in arms, is unable to grasp my hand firmly, action of biceps easily resisted. Due to the weakness in arms, direct feeding is necessary.

Fourth day of paralysis, breathing becomes accelerated, superficial but regular, says he cannot cough or sneeze, clears throat with difficulty, swallowing of solids or liquids not interfered with. Teeth are very sensitive. Striking teeth together causes sharp pain. Temperature sense is accentuated; complains acutely if heat is applied, yet he suffers more during night—attributes this to lowering of temperature.

Mild, transitory delirium, with hallucinations, during fourth and fifth days, temperature not high, however, 102.5 being maximum noted. Temperature persists until seventh day of paralysis. Paralysis of bladder disappears on the eighth day. On the twelfth day, complains of sore throat; swallowing is difficult. Tonsils are markedly swollen and inflamed. There is a gradual abatement of hyperesthesia, except in lower extremities, which necessitates exhibition of opiates at intervals until the sixteenth day. At the end of quarantine period, which coincides with period of observation, there was a total paralysis of both lower extremities, except slight motion of great toe of the right foot; this motion was at no time abolished. There was quite noticeable atrophy of lower extremities; this atrophy appeared symmetrical; upper extremities were normal.

This case is interesting and instructive, in that all the cardinal symptoms of the so-called

typical case were present and, the patient being an intelligent adult, we were able to note the subjective as well as the objective symptoms. It, as you know, is difficult to interpret the experiences of the infant sufferer.

The marked hyperesthesia and pain, in this case, we might well interpret as an expression of posterior cornuae. The presence of pain at such high level of cord, the peculiar sensibility to vibration noted, together with the mental symptoms, would best be explained, in my opinion, by an inflammation of the meninges with increased subdural pressure.

Diagnosis: There is, of course, during the onset of acute poliomyelitis, the usual symptoms common to any acute infection: malaise, chills and fever, rapid pulse and respiration, loss of appetite, nausea and vomiting; diarrhea is often present.

The outstanding features of this disease are, in a child, irritability and fretfulness, drowsiness, evident tenderness upon being handled, sore throat, severe headache, especially in occiput, pain and stiffness in neck, backache, followed by flaccid paralysis of one or more extremities, loss of reflex, patellar, cremasteric and abdominal; inability to urinate, loss of response to faradism, constitute a complete picture of a "typical case." The spinal fluid may become turbid, Noguchi's reaction together with lymphocytosis may be of value; leucopenia is present as a rule. Fibrillary twitching bespeaks anterior horn lesion, tenderness in the spine is an important diagnostic symptom.

Acute poliomyelitis may be confused with peripheral neuritis, especially post diphtheretic, as in case cited; Landry's paralysis; cerebro-spinal meningitis, meningitis due to other toximias, as acute gastroenteritis, rheumatism and rickets may resemble many aspects of this disease. Infantile paralysis, let me repeat, "obeys no formulae:" while there is a predilection for children during first detention, no period of life is exempt. During the past epidemic, in this state, there was a large number of adults attacked, the oldest being forty-two years of age, and who, by the way, succumbed to the disease. In Switzerland, during the past summer, adults paid a heavy toll to the scourge, the onset being acute and frequently followed by a progressive, ascending paralysis, as in Landry's paralysis.

Let us admit that the diagnosis prior to or

in the absence of paralysis is, as yet, well nigh if not quite impossible.

A REPORT OF AN EPIDEMIC OF TYPHOID FEVER.*

WILLIAM M. FRIEND, M. D.,
PARK RIDGE, ILLINOIS.

General Considerations. Park Ridge is situated at the northwest corner and just outside the Chicago city limits. The Des Plaines river, into which the city drains, lies about one mile to the westward. The populations as reported by the United States census bureau have been as follows:

Year	Population	Per Cent Increase
1890	987	....
1900	1,340	35.8
1910	2,009	49.9

The population at the present time is estimated to be slightly over 3,000.

The city is primarily residential and essentially a part of Chicago. Transportation facilities are provided by the Chicago & North Western Railroad. There are no factories. A cleanly and well-kept appearance is presented; the streets are, for the greater part, well paved and good drainage is provided.

An area of about two square miles is included within the corporation limits. Elevations within this area range between about 635 and 665 above sea level or about 55 to 85 feet above the level of Lake Michigan. The elevation of the Des Plaines river bed west of the city is approximately 615 or 20 feet below the lowest part of the city.

The drift covering in this section is mostly of till and about 105 feet thick. Shallow wells 8 to 15 feet deep formerly yielded a plentiful supply of water for general household use, but the installation of a sewerage system has served to drain such wells.

Water Supply and Sewerage. Adequate water supply and sewerage systems are the two most valuable assets a city can have from the standpoint of health, and, therefore, a brief statement of the systems at Park Ridge will be given here.

Water Supply. A public water supply was installed in 1890 and is now practically universally used throughout the city. The water is pumped

*Read before the scientific meeting of the staff of the Sheridan Park Hospital, Chicago, Nov. 23, 1916.

directly into the distribution system from two wells 1,425 and 1,806 feet deep, respectively. Connected with the distribution system is an elevated tank affording a pressure range about the city of 40 to 55 pounds.

The wells are adequately cased and protected and the method of pumping and distributing the water precludes contamination. Analyses of the water made in the laboratories of the State Water Survey show it to be of excellent sanitary quality and very satisfactory for general domestic use.

Sewerage. The city is provided with a combined system of sewers covering practically the entire built-up area. There are two outlets to the Des Plaines river. Only a few houses that can connect with the system have not yet done so and in these instances privies are still in use.

Typhoid Previous to Present Outbreak. Park Ridge previous to this outbreak of typhoid fever had been practically free from that disease. During the fall and winter, up to the time the outbreak started, no cases of typhoid had occurred. Other contagious and infectious diseases had been of comparatively rare occurrence and the city had been considered a clean and desirable residential community.

Present Typhoid Fever Outbreak. As a part of the investigation, a personal visit was made to all the houses having cases and detail information regarding each case obtained. This information, which is made use of in the following paragraphs, is given in detail at the end of the main report.

Magnitude and Duration. There occurred in all, twenty-eight cases during forty-four days, from January 9 to February 21. Since the latter date and up to the end of the investigation or present time, no new cases occurred. None died.

Geographical Distribution of Cases. The cases were not confined to any one section of the city. Fourteen and ten cases, respectively, were north and south of the railroad tracks which divide the city centrally. Four cases occurred outside the city limits. A point which bears mentioning is that generally the cases occurred in the better class of residences.

The deduction made from the geographical distribution of cases is that either the agent of infection had been active throughout the city or that the persons affected had met in common and at such times been exposed to the disease.

Distribution of Cases According to Families, Ages and Sex. The 28 cases were distributed among 23 families as follows: One family contained 3 cases; three families contained 2 cases each; nineteen families contained 1 case each.

The 24 cases comprising the main group previously mentioned were distributed among 21 families, only three of which contained more than one case and none of these were so-called secondary cases. This lack of secondary cases was due, no doubt, in large measure to the care in handling the patients and the systematic inoculation of other members of the family.

Including maids and hired men, who, for the purpose in view, may be considered an integral part of the families in which they were employed, the total membership of the twenty-three families affected was 127, of whom 60 and 67 were adults and children, respectively. (This division into adults and children may not be strictly accurate, since the ages of other than the cases were not definitely determined, but the figures are substantially correct.) About 22 per cent. of the family membership had the disease. This figure, of course, must not be taken as the ratio of those taken sick to those exposed since, unquestionably, families were exposed to the disease in which no cases occurred.

Table 1 following shows the distribution of all cases according to age and sex. Table 2 is similar, but includes only the twenty-four cases in the main group.

Age, Year—	Sex		Total.
	Male.	Female.	
0-4.....	2	..	2
10-19.....	5	4	9
5-9.....	4	5	9
20-49.....	2	3	5
50-.....	3	..	3
Total	16	12	28

Age, Years—	Sex		Total.
	Male.	Female.	
0-4.....	1	..	1
5-9.....	4	5	9
10-19.....	3	4	7
20-49.....	1	3	4
50-.....	3	..	3
Total	12	12	24

The tables show that the disease was confined in large part to children. Of the twenty-four cases in Table 2, 17 or 71 per cent. were under 20 years of age and 10 or 41 per cent. were even under 10 years of age. With the addition of the four cases in Table 1, the percentages were practically the same, namely, 71 per cent. and 39 per cent. for the cases under 20 and 10 years of age.

respectively. The outbreak proper was evenly divided among the males and females.

It may be deduced from a study of the distribution of cases as regards families, ages and sex that a considerable number of families must have been exposed and that the agent of infection was more active among children than among adults. The source of infection was general and not confined to one sex.

In Table 3 the cases have been grouped as regards occupation under four headings. Two classifications have been made, one comprising all the cases and the other only the twenty-four cases in the main group or outbreak proper.

TABLE 3.

Occupation—	Total No. of Cases.	No. of Cases, Outbreak Proper.
Attended school.....	16	15
Employed in Park Ridge.....	4	3
Employed out of town.....	3	2
Stayed at home.....	5	4
Total	28	24

Distribution of Cases According to Occupation.

As might be expected from the age distribution of the cases, the majority attended school. There are three schools in Park Ridge, two public grammar schools and a German school. There is no high school in the city and there were no cases among the pupils attending the high school at Des Plaines. The two grammar school buildings are located near the center of the city. One may be called the main school and the other is known as the north branch school. The latter contains only one or two grades and the rest of the building is used for domestic science and manual training classes from the main school.

The distribution of the cases attending school as regards buildings and grades is given in Table 4 following:

TABLE 4.

School and Grade—	No. of Cases.
Main, grade 1.....	2
Main, grade 2.....	1
Main, grade 3.....	3
Main, grade 5.....	1
Main, grade 6.....	2
Main, grade 7.....	1
Main, grade 8.....	1
Main, all grades.....	11
North Branch, grade 4.....	1
Kindergarten.....	1
German school.....	1

The cases were not confined to any one room in the schools. The greater number of cases at the main school is to be expected, owing to the greater number of children attending there, but other than that it was not significant.

Of the cases that were employed in Park Ridge and outside of town no two worked at the same

place. Of the five cases that, for the most part, stayed at home three were too small to attend school and the greater two were engaged in household duties.

It is evident that the question of occupation had no bearing upon the cause of the outbreak. The fact that a majority of the cases were school children is significant only from the standpoint of age distribution and not from that of occupation. The source of infection could not have been at school, for the schools were closed for vacation during the time the infection must have taken place.

Relation of Social Gatherings to Outbreak.

As far as the geographical and chronological distribution of cases is concerned, the infection may have taken place at some party or social gathering attended by the cases during the latter part of December or early part of January. The age and sex distribution of cases would restrict this gathering to one primarily of children of both sexes.

Inquiry, however, as regards attendance at social gatherings or parties during the period in question showed that there had been no gathering common to more than three cases and that about nineteen cases had attended no parties or gatherings whatsoever. It is certain, therefore, that no social gathering entered into the cause of the outbreak.

RELATION OF WATER SUPPLY TO OUTBREAK.

The cases were distributed about the city as would be true in a waterborne outbreak, but in this instance were far too few to even cast suspicion upon the public water supply which is so universally used. Moreover, in a waterborne outbreak adults and children would be equally exposed, which certainly was not the case in this outbreak.

Occasionally, at dead ends the water had a stale taste and this led persons uninformed on the subject to think the water impure. This phenomenon is common in all cities having a public supply and where dead ends exist and bears no relation whatever to the purity of the water.

RELATION OF MILK SUPPLY TO OUTBREAK.

That milk was the agent of infection is very strongly indicated by all the epidemiological evidence so far presented, including the chronological and geographical distribution of the cases,

the number of families affected and the distribution of the cases as regards age and sex. A detail study of the milk supply is, therefore, warranted, after which conclusions may be drawn.

Sources of Milk Supply. There were five dairies that supplied milk to Park Ridge. Two of these had their own farms and produced their own milk, while the other three bought from different farmers all milk sold. The dairies are designated by letters as Dairy A, Dairy B, etc. The farms have been designated by the same letters as those of the dairies which they supplied with milk, and in addition, numbers have been used to differentiate between farms supplying the same dairies. For instance, Dairy A was supplied by milk from farms A-1, A-2, A-3, etc. A general sanitary inspection was made of all dairies and milk farms and the results of these inspections are incorporated as a supplementary report.

TABLE 5.—DISTRIBUTION OF CASES AS REGARDS MILK SUPPLY.

Dairy —	No. of Customers.	No. of Cases on Route.
A	204	3
B	160	22
C	167	2
D	36	1
E	30	1
Total	597	*25

It may be seen from Table 5 that Dairy B, which supplied only 27 per cent. of all the customers had on its route 79 per cent. of all the cases. There were only six cases (Cases 11, 12, 20, 21, 27 and 28) not on the milk route of Dairy B. If these six cases can be accounted for, the evidence contained in Table 5, together with all the rest of the epidemiological evidence, is complete and conclusive that the milk supply of Dairy B was infected.

Cases 11 and 12 were two of the cases not on the route of Dairy B, but records were given by these cases showing that on occasions they had used milk from that dairy. Case 11 had visited at the home of Cases 3 and 6 on December 26 and there drank milk from Dairy B. This patient was taken sick on January 19, which would mean a long prodromal period, namely, about three weeks. Considering the nature of the onset of the disease in some of the other cases in the outbreak, a long prodromal period seems en-

tirely possible. Case 12, on January 8, drank milk from Dairy B that his aunt who lives nearby had sent over to his home. On January 20, or after a prodromal period of about twelve days, Case 12 was taken sick.

Group of Four Cases. Four cases, namely, Cases 20, 21, 27 and 28 had never used milk from Dairy B. These are the four cases that have been considered separate from the main outbreak of 24 cases. A study of their records shows the manner of their infection or relation to the main outbreak.

Cases 20, 21 and 27 were in the same family and lived outside the city limits. They had used only canned condensed milk or a little fresh milk from a neighbor's cow. Cases 20 and 21 were boys 14 and 17 years of age and were taken sick at about the same time, namely, January 29 and February 2, respectively. About two weeks before these dates the two boys had been skating on the Des Plaines river and, becoming thirsty, had broken a hole in the ice and drank the river water. This water is, at all times, polluted, as it receives the untreated sewerage from Des Plaines and Park Ridge, and at the time the boys drank the water there was especial danger, since the discharges of several typhoid cases in Park Ridge were then being carried off by the sewers. There seems to be no question but what Cases 20 and 21 were infected by thus drinking the badly polluted river water.

Case 27 was a little boy about 2 years old and had not been from home. He was not taken sick until nearly three weeks after his brothers (Cases 20 and 21) were taken sick, and was apparently a secondary case. The chances for secondary infection were exceptionally good in this household, as the mother took care of the cases and attended to her regular household duties and no disinfectants were used. The little boy had been given two inoculations before he was taken sick and he had a mild case.

Case 28, the last case to occur, was employed as a lineman and his work took him about the country. There were two other men in his party and one of these, who did not live in Park Ridge, was taken sick at about the same time as Case 28. As far as could be learned, both men had been affected the same way, although the sickness of the out-of-town man was pronounced grippe and that of Case 28 as typhoid, proven by blood test.

*This total is the actual number of cases considered and not the total of the column. Three cases on the route of Dairy B were also on the routes of Dairies A, C and E, respectively. Two of these three cases, however, in reality generally used only the milk from Dairy B, as the milk from the other dairies was reserved for other purposes.

All things considered, it would seem fair to assume that the cause of their sickness was a common one, and since one of them did not reside in Park Ridge, they may be eliminated as having any connection with the Park Ridge typhoid outbreak.

Milk the Cause of Outbreak. Summing up all the cases then shows that they divide themselves into two groups, a large group of twenty-four cases and a smaller group of four cases. Of the small group of four cases, three cases are shown to have been infected either directly or indirectly by drinking river water and the other case infected elsewhere than in Park Ridge. Of the large group twenty-two cases regularly used milk from Dairy B and the other two cases had used it at such times before their sickness as to admit of its being the cause of their infection. The evidence is not only conclusive that the milk supply was the cause of this outbreak, but there is absolutely no evidence that would explain the infection of any one of the main group of twenty-four cases in any other way.

Source of Infection of the Milk. Before discussing the manner in which the milk supply of Dairy B became infected, a history of this dairy with relation to the outbreak will be given.

On January 22 Dairy B was ordered to stop selling milk by the state and local health authorities. On February 6 Dairy B was allowed to resume business. On February 17 Dairyman B called a physician who immediately diagnosed his sickness as typhoid and ordered that no milk be sold from his dairy. Permission was given to continue the business, however, from Dairyman B's sister's residence in Park Ridge, provided no equipment be removed from the home of Dairyman B and used. This restriction was not complied with and a complete embargo was placed on Dairy B on February 20.

No infection took place from allowing Dairy B to resume business after the first embargo. The late cases in the outbreak evidently had a long prodromal period.

At one time during the outbreak, it was thought the infection of Dairy B's supply had taken place from possibly infected bottles removed from a certain household. A careful inquiry regarding this showed that the bottles were not exposed to infection and the infection could not possibly have come from that household.

Investigation failed to show any source of

infection for the milk supply at Dairy B. No persons handling the milk gave a record of ever having had typhoid. Dairyman B was perfectly well until sometime after the outbreak had started and apparently was a victim of the infected milk the same as his customers.

The milk house in use at that time was not a very satisfactory building and there were no provisions for pasteurizing the milk or sterilizing the bottles and other milk utensils. The bottles were simply washed with warm water and soap. The water supply was obtained from two shallow wells and a cistern. The cistern and one of the wells had good concrete covers and the other well had an old board cover. Shallow wells are not a desirable source of water supply, but in this instance there was nothing that would indicate that the water supply had become contaminated with typhoid bacilli.

The milk distributed by Dairy B came from four farms. Farms B-1, B-2, B-3 and B-4, supplied on an average about 4 cans, 2 cans, 4 cans and 1 can of milk daily, respectively. The milk from B-2 was generally separated for cream. The milk from the other farms was, as a rule, handled and bottled separately and certain customers received milk regularly from the same farm.

A list of all the customers of Dairy B was obtained and read off to Dairyman B who stated which milk he used to leave at the different houses. This showed that about 18 customers regularly received milk from Farm B-1, and about 10 customers received milk from Farm B-3. The remaining customers received milk from Farm B-4 or whatever milk Dairyman B had a surplus of. Then as a check, the names of the families having cases were read off and the answers compared with the answers previously given. They all checked exactly.

With the exception of Case 19, all of the cases on Dairy B's route had regularly received milk from Farm B-1. Case 19 was regularly supplied at his home by Dairy B with milk from Farm B-3. Inquiry showed, however, that additional milk was obtained occasionally from a store that handled milk from Farm B-1 as supplied to it by Dairy B. The milk that the two cases not on Dairy B's route had on occasions used, and which was the cause of their infection also came from Farm B-1.

The above shows that only that milk from Farm B-1 was infected. The infection evidently

took place before it reached Dairy B, for if the infection had taken place at the dairy, the milk from the other farms would have likewise been infected. That a cross-infection from the milk from Farm B-1 to the milk from the other farms did not take place may be considered very fortunate, for in such an event the number of cases would have been greatly increased.

An effort had been made to clean the cow barn before the visit was made, but there was still plenty of room for improvement. The owner and his hired man did all the milking. The hired man had been employed for over a year and gave no record of ever having had typhoid. Farmer B-1 had had typhoid fever when he was a boy, but if he had remained a carrier he would have no doubt infected the milk long before. The milk vessels were washed at the house by the farmer's wife. She gave no record of ever having had typhoid. The water for washing the cans was obtained from a cistern and there is no reason to suspect that this water was infected.

The milk very probably was infected from the Des Plaines river water. Farmer B-1 denied ever having used the milk cans to carry river water to the cows, but the hired man at Dairy B stated absolutely that this was done. That it may have been done seems very probable when the water conditions on the farm are considered.

The Des Plaines river had been depended on as a source of water for the cows. When winter came, Farmer B-1 constructed a channel along the bank for the purpose of giving the water such a velocity at that point that it would not freeze. Even if it had been possible to keep a place open, there must have been days when, owing to the weather, the cows could not go to the river to drink, and at such times had to be watered at the barns.

Since fall, however, the three wells on the farm had been dry and Farmer B-1 had been carrying water in milk cans from Dairy B and from a well at an old mill about a quarter of a mile from the farm. To haul all the water that distance for twenty-four cows would be a considerable task, and the temptation to use the Des Plaines river water would be great, especially during the cold weather. The sewers of the City of Des Plaines discharge into the river only about a mile above the farm.

As noted above, contradictory statements were made regarding the use of the milk cans and the

river water and further questioning brought no results. All that can be said, therefore, is that there was no safe water supply on the farm, that the temptation to use the river water was great during the cold weather, and if the river water was carried in the milk cans, it may readily have served as the source of infection.

SUMMARY.

The typhoid fever outbreak at Park Ridge comprised 28 cases. These 28 cases divide themselves as regards source of infection into two groups, a large group comprising 24 cases and a small group comprising the other 4 cases.

The large group of 24 cases resulted from the infected milk supply of Dairy B. The epidemiological evidence not only proves this to be true, but eliminates the possibility of any other source of infection. The geographical and chronological distribution of the cases are more or less characteristic of milk-borne outbreaks. The cases were evenly distributed as to sex, which is very characteristic of milk infections since both sexes are, as a rule, equally exposed. A majority of the cases were children, which is another very characteristic feature of milk-borne outbreaks since children are greater milk users than adults. Twenty-two of the cases regularly used milk from Dairy B and the other two cases had used it shortly before they were taken sick.

Dairy B obtained milk from four farms. The different supplies were bottled separately and certain customers daily received the milk from the same farm, with one exception only, those families receiving milk daily from Farm B-1 had cases and the family which is the exception occasionally received milk from that farm. This shows that only that portion of Dairy B's milk obtained from Farm B-1 was infected.

The milk was not infected at Dairy B or all this dairy's milk would presumably have been infected. The source of infection on Farm B-1 could not be definitely ascertained, but may probably have been milk cans contaminated by Des Plaines river water. Contradictory statements were made about the use of the cans for carrying river water. If they were so used they may well have been the source of infection, for the sewers of the City of Des Plaines discharge only about a mile above the farm.

The small group of four cases show no connection with the milk-borne outbreak. Two of these

cases drank water from the Des Plaines river while out skating about two weeks before they were taken sick. This would account for their infection. Another case is a baby brother of these two cases and evidently was due to contact. The remaining fourth case was, in all probability, infected out of town, together with an out-of-town man with whom he worked.

The above article is an abstract taken from Sanitary Engineer H. F. Ferguson's report of the "Outbreak of Typhoid Fever and General Sanitary Conditions at Park Ridge."

A BRIEF REVIEW OF PAVLOV'S WORK.*

JAMES J. MOORHEAD, M. D.,
CHICAGO.

That animal experimentation has done more than enable the surgeon to better wield his scalpel and ply his needle, contributions such as we briefly review tonight amply testify.

Believing the work of secretion in the alimentary canal, so far as it concerned the most important organs of digestion, viz., the stomach and pancreas, not to be as represented in text-books, and consequently existing in the mind of the physician, and desiring to replace the older teaching by a fuller and more correct representation, Pavlov and his co-workers, in their laboratory at St. Petersburg, nearly 30 years ago, began an experimental investigation of the work of the digestive glands. Modern surgical technic—just developing—was a prime requisite. This genius was among the first to insist on what he termed surgical physiology—the work of the laboratory to equal that of the best hospital operating room. Post-operative care of the animals, providing for their comfort in every detail, was a special feature.

In 1897, after ten years' work, the results were published in the Russian language; later in French and German; an English edition appeared in 1902, revised in 1910.

Pavlov compared the digestive canal, from the chief function which it has to perform in the living organism, to a chemical factory, where the raw materials—the food-stuffs—are submitted to an essentially chemical process. In this factory the foods are brought into a condition in which they are capable of being absorbed into the body

fluids and made use of for the maintenance of the processes of life. The factory consists of a series of compartments, in each of which the food, according to its properties, is there retained for a time or at once sent on to the next; and each single compartment is provided with suitable reagents. These reagents are either prepared in adjoining little workshops, burrowed into the wall of the laboratory itself, or else in distant and separate organs, connected, as in other large chemical factories, with the main workshop by a system of transmitting tubes. These latter are the so-called secreting glands with their excretory ducts. Each of the workshops furnishes a special fluid, its own particular product, endowed with definite chemical properties which enable it to act on certain portions of the food, this latter being ordinarily formed of a complex mixture of different ingredients. These properties are chiefly contributed by special substances in the reagents, the so-called ferments. The separate fluids, the digestive juices, as they are usually termed, attack in some cases only a single ingredient of the food, in others several. These latter combine the properties of several distinct reagents, each of which acts in its own special way. But even a juice which has only one ferment is a very complex fluid, since, in addition to the enzyme, it holds other substances in solution, viz., acids, alkalies, albumin, etc.

Physiology learned all this by obtaining either the fluids in question, or the pure ferments from the organism, and studying, in the test-tube, their effects upon the constituents of the food, both singly as well as jointly when all are present together. Indeed, it was upon knowledge so acquired that the teaching of the science with regard to the elaboration of the food, or as we say, of its digestion, was based.

Pavlov contended that this conception of the digestive process—essentially deductive—suffered from many and serious defects. Several questions were undecided; others had not even been raised. For example, why are the fluids poured out on the raw material in one particular order and not in any other? Why are the properties of certain reagents often repeated, combined with different reagents, in other juices? Are all the constituents of a particular fluid simultaneously poured out on the food, and does this happen indiscriminately with every kind of food that gains entry to the digestive canal? Are the reagents

*Read before Englewood Branch, Chicago Medical Society, Nov. 7, 1916.

subject to variations, and if so when, how, and why do such alterations appear? Do these variations simply concern the composition of the fluid as a whole, or are the separate constituents altered in different directions according to the requirements of the raw material? How do the reagents vary with augmented or diminished activity of the whole factory? Is there not a species of contest between the different constituents of the food, in that one ingredient may require a special reagent the activity of which may interfere with that of other reagents or the remaining ingredients?

Pavlov's problem consisted in the working out of a suitable method: 1, to know how the reagents were poured out upon the food brought into the digestive factory; 2, to be able to obtain the reagents at all times; 3, they must be collected in absolutely pure condition, if we were to determine how their compositions varied; also in accurately measureable quantities. Lastly, it was necessary that the digestive canal should perform its functions normally, and that the animal under experiment should be in perfect health.

To better understand the experiments presented, it is well to give here the general plan of innervation of an organ. A complete nervous mechanism consists of the peripheral endings of the centripetal (afferent) nerves, the centripetal nerves themselves, the nerve cells (a group of nerve cells connected with each other is termed a nerve-center), the centrifugal (efferent) nerves, and, lastly, their peripheral terminations. Physiology now accepts it as an established fact, that nerve fibers serve only as conductors of impulses, which come in from contiguous links of the nervous chain. Only the peripheral endings of nerves and the nerve cells themselves have the power of transforming the external stimulus into a nervous impulse. In other words, in the intact organism, these alone constitute the normal receivers of the nervous system. Whether the peripheral ends of centrifugal (efferent) nerves are likewise able to serve as receivers of external stimuli has still to be answered. Consequently, when any external agency excites the peripheral terminations of afferent nerves—the receiving stations—in one or other organs, the effect of the stimulus will be conveyed through the centripetal nerves, as through receiving wires, to the central station—the nerve cells. Here it becomes changed

into a specific impulse and then comes back along the centrifugal nerves—the outgoing wires.

The saliva since early days was studied by inserting a cannula in the duct of the gland undergoing investigation.

Pavlov's method: The orifice of Wharton's duct with a portion of mucosa attached is transplanted to the cutaneous surface. By means of a special cement, the wide end of a small glass conical funnel is attached to the skin surrounding the orifice. To its narrow end a small test-tube, which serves to collect the saliva, is suspended by wire loops.

To an animal thus prepared, offer or give a piece of flesh, throw fine sand into its open mouth, or apply to the buccal mucosa the plume of a feather dipped in acid solution, and obtain a strong flow of saliva.

Another animal, with Stenson's duct similarly prepared: Offer the dog a piece of flesh; although eager for the savory food, no saliva flows. Give it some raw flesh to eat; again the saliva is absent. To prove everything connected with the experiment satisfactory, now give the dog finely powdered dry flesh, and obtain at once an abundant secretion.

Briefly, these experiments show the specific excitability of the salivary glands.

Sham Feeding: The earlier methods of collecting and investigating the gastric juice by means of a simple gastric fistula having proved inadequate, Pavlov devised the following experiment: A gastric fistula is made; a few days later the cervical esophagus is sectioned and the divided ends—separated by a bridge of tissue—sutured to the skin. When fully recovered from the effect of this operation, the dog is placed in a frame for observation. Being fed meat, the animal eats greedily, but the whole of the food swallowed comes out again at the esophageal opening in the neck. After feeding in this way for five minutes, perfectly pure gastric juice makes its appearance at the fistula, the stream steadily increasing. The secretion may continue for 3 to 6 hours, with an average of 3 c. c. per minute. This discovery has a commercial value. Considerable quantities of the sterilized product are exported to foreign countries to be employed as a therapeutic remedy as well as a reagent for laboratory purposes.

This experiment demonstrates: 1, the appetite gastric juice—on which Pavlov lays so much

stress; 2, that the effect of the feeding is transmitted by nervous channels to the gastric glands. To confirm the latter statement: At the time of making the gastric fistula, divide the right vagus nerve below its recurrent laryngeal and cardiac branches. Thus only the pulmonary and abdominal branches on this side are thrown out of action; the laryngeal and cardiac branches remain intact. Later (with brief narcosis) the left vagus in the neck is exposed, and a loop of thread passed round the nerve. Within a few hours the animal is ready for observation. The left cervical vagus is now divided. The pulmonary and abdominal branches on both sides are thus paralyzed, while on the right side the laryngeal and cardiac fibers are intact. The animal shows no sign of discomfort. Eats greedily, but not a drop of juice flows from the stomach.

Prof. Carlson, University of Chicago, in his splendid work published recently—containing much of interest to the practitioner—states that dogs with both vagi sectioned exhibit practically normal gastric digestion within a few days after the operation, despite the fact that the appetite gastric juice is eliminated; also, that sham feeding does not satisfy the appetite, even though the sensation inhibits hunger.

Does mechanical stimulation of the walls of the stomach excite the secretory work of the glands?

A gastro and esophagotomized dog is used for this experiment. The stomach is washed clean with water. Folds of red and blue litmus paper are at hand. A feather and a stout glass rod are moved, alternately, in all possible directions, within the stomach, changing from one to the other every five minutes. Not a drop of juice escapes from the fistular orifice. An objection—that we are dealing with a dog out of health, whose gastric glands from some possible cause are unable to react normally—may be set aside by giving the same animal a fictitious meal. After five minutes from the beginning of the feeding drops of juice flow from the stomach. 150 c. c. have thus been collected in 30 minutes.

This experiment disproves the commonly accepted theory of mechanical stimulation.

Of course the motor function of the stomach is not here considered.

Dogs with divided esophagus and gastric fistula are fed by bringing the food directly into the stomach.

The problem of obtaining pure gastric juice was settled by the sham feeding experiment, but this did not afford the means of observing the rate of secretion of the juice and of studying its properties during digestion. Obviously to accomplish this there must be the continuance of normal gastric digestion side by side with a quantitative collection of perfectly pure gastric juice.

A happy idea for overcoming difficulties of this kind was hit upon by Thiry. In order to procure succus entericus—a secretion likewise formed by microscopic glands embedded in the intestinal wall—and to study it in the act of formation, he isolated a cylindrical piece of gut, formed this into a cul-de-sac, the open end of which he sewed into the abdominal wound.

To accomplish a similar result with the stomach, Heidenhain isolated a portion of the cardiac end by a transverse incision, cutting through the branches of the vagus which course lengthwise along the wall of the cavity. To overcome this disadvantage—impairment of the nervous connection—Pavlov contrived an improved method of making

THE MINIATURE STOMACH.

After considerable experience I have found the following procedure (a slight modification of the original technic) satisfactory:

Upper abdomen opened through linea alba; stomach delivered; clamps applied to long axis of viscus; stomach incised from right to left—to zone of posterior vagus nerve plexus; mucosa of isthmus divided and dissected 2 cms. on either side; flaps sutured (in sub-mucosa) so as to form dome-like partition; suturing continued to close both cavities; sero-serous apposition by another line of stitching (illustrated on blackboard); pouch brought through stab-wound; closure of median wound; tube inserted in pouch; dressing.

To describe the matter in a few words, we separated an elongated piece from the stomach, formed it into a pouch; from the distal open end we are to collect juice; the proximal end (nerve supply preserved) remains connected with the stomach.

One week later the juice is collected from the miniature stomach, as follows: A small rubber tube, perforated at its deeper end and provided with a flange of thick rubber at its outer end, is led into the pouch. A short piece of glass tubing is inserted into the outer end of the rubber tube

and dips a little way into a bottle, which fits in a metal bucket with a wide flange having two holes through which are passed tapes; these are tied round the body. During the collection of juice the animal is supported in the standing posture in a suitable frame.

The following experiment shows that feeding with milk, bread, or meat call forth each time special modifications in the activity of the gastric glands.

At 8 o'clock in the morning a dog was given 200 grms. of bread to eat.

Time.	Hourly Quantity of Juice in c.c.	Digestive Power in mm.
8-9 a. m.	3.2	8.0
10 a. m.	4.5	7.0
11 a. m.	1.8	7.0
The dog was now given 200 grms. raw meat.		
12 noon	8.0	5.87
1 p. m.	8.8	3.50
2 p. m.	8.6	3.75
The dog now received 200 c.c. milk.		
3 p. m.	9.2	3.75
4 p. m.	8.4	3.30
An additional quantity of 400 c.c. milk was now given.		
5 p. m.	7.4	2.25
6 p. m.	4.2	2.2

The influence of the different foods upon the digestive power of the juice is striking. The total acidity also varied.

The proteolytic power of the fluid is determined by the process of Mett, as follows: Fluid-egg-white is sucked up into a fine glass tube, and coagulated therein at a definite temperature of 95° C. The tube is then cut into small pieces, which are placed in 1 or 2 c. c. of the fluid to be investigated. The whole is kept in the thermostat at 38° C., and requires no further watching. Solution of the proteid occurs at the ends of the small glass tubes. After a certain period, the length of the pieces of tube, and of the undigested remains of the proteid column are measured off with the aid of a millimeter scale and a microscope of low magnifying power. The difference gives the length of the digested proteid cylinders in millimetres and fractions of a millimetre.

To demonstrate its value in experimental pathology of digestion, Pavlov introduced for a few minutes into the small stomach a 10 per cent solution of silver nitrate. The profuse secretion of mucus, which followed, naturally led one to suppose that a morbid condition had been established, but its complete disappearance within 24 hours forced the conviction that the pathogenic influence had been successfully encountered and conquered before one's eyes. The surface epithe-

lium had poured out a sufficient quantity of mucous fluid to dilute the noxious substance, and expel it, thus protecting the more important elements beneath.

By direct application of a 10 per cent. solution of silver nitrate a condition of asthenia—weakness and irritability of the peptic glands—was produced, diminishing the secretion considerably.

In a recent research on gastric and duodenal ulcer, by injecting a small quantity of 5 per cent. solution of silver nitrate into the wall, we caused a typical lesion in the small stomach.

To correct the current belief regarding the action of alkalies in hypersecretion, Pavlov treated a series of dogs in which this trouble arose from illness or was produced intentionally, by the administration of a solution of sodium bicarbonate. This treatment diminished markedly the hypersecretion and set aside the exalted excitability of the glands. In other words, the healing effect was due to inhibition. For the first time known, Mr. Watts and I recently made a Pavlov accessory stomach in the opossum, and are now using six such animals in a research.

THE PANCREAS.

The formation of a permanent pancreatic fistula had always constituted one of the most difficult tasks in experimental physiology. Tying a glass tube into the duct and leading it through the abdominal wall, or fastening a T-shaped piece of twisted lead wire in similar manner, were tried and found wanting.

Pavlov devised a means of access to the gland lumen by which the duct could be kept open for any desired length of time. Briefly: From the wall of the duodenum, a piece containing the orifice of the pancreatic duct is cut out, the bowel then stitched up, its lumen not being appreciably narrowed, and the isolated piece of intestine (with the mucosa outwards) sewn into the slit in the abdominal wall.

Two weeks later the animal is ready for observation.

Protection of the skin from the eroding effects of escaping juice was a problem. Frequent washing of the surface with water and smearing with emollient ointments helped, but the best method was learned from one of the animals operated upon. A dog having a pancreatic fistula tore a heap of mortar from the wall of the room for two

consecutive nights. The appearance of cutaneous irritation was considerably reduced. The juice had been absorbed by the porous material. Following this discovery, a bed of fine sand was provided, on which the animal lies, except during the hours of the experiment.

Bread and milk, with the addition of sodium bicarbonate, is the usual diet.

To estimate the activity of the proteolytic and amylolytic ferments: Thin glass tubes are filled with colored starch paste and then exposed in the thermostat to the influence of the ferment for half an hour. The paste is dissolved from the ends inwards; the extent of the action, owing to the coloration, being clearly visible. The length of the digested column is measured and expressed in millimetres.

Pavlov, by experiment, showed that:

The work of the pancreas, like that of the gastric glands, is also specialized in regard to the hourly rate with which the secretion is poured out on the different classes of food. For example, if a dog be fed for some time on bread and milk, and then be given an exclusively flesh diet, containing more proteid but scarcely any carbohydrate, a continuous increase in the proteid ferment of the juice is observed. The ability to digest proteid waxes from day to day, while, on the contrary, the amylolytic power of the juice continuously wanes.

The vagus is the secretory nerve.

The acid chyme acting on the mucosa of the duodenum and jejunum is an exciter of the pancreatic secretion.

Alkalies have an inhibitory effect.

Fat is an independent exciter of the pancreatic gland.

Sham feeding may excite a moderate flow of pancreatic juice.

Water is an independent and direct exciter of the secretory mechanism of the pancreas.

To acquire definite knowledge of the bile, Pavlov believed it essential to ascertain the quality and quantity of this fluid poured into the alimentary canal. Such was not possible with the common duct or gall-bladder fistula. He therefore transplanted the natural orifice of the bile duct to the cutaneous surface. The technic is similar to the making of a permanent pancreatic fistula.

He was convinced that the chief digestive use of the bile was to promote pancreatic digestion,

both directly and indirectly. It arrested the action of the pepsin, which was injurious to the ferments of the pancreatic juice, and favored the ferments of the latter; in particular the fat-splitting ferment.

He concluded from experiment that the succus entericus possessed, to a striking degree, the power of augmenting the activity of the pancreatic ferments, and more especially the proteolytic.

The importance of appetite is discussed at length, and the physician advised, in treating digestive disorders, to constantly bear in mind the psychic element connected with the desire for food. For example, a brain-worked individual, who cannot for a moment distract his thoughts from his daily work. He eats without observing it, or eats and carries on his work at the same time. This often happens, particularly in the case of people who live in the hurry of great cities. Such systematic disregard of the act of eating prepares the way for digestive disturbances in the near future, with all their consequences. There is no appetite juice, no "igniting juice," or, at best, very little. The secretory activity comes slowly into play; the food remains much longer in the digestive canal than is necessary, or passes, for want of sufficient digestive juices, into a state of decomposition which irritates the mucosa of the alimentary canal, and brings it into a condition of disease. No medicinal treatment can help such a patient while he remains in the midst of his old conditions. The fundamental cause of his illness still continues. There is only one course to pursue, namely, to take him completely away, to free him from his occupation, to interrupt the interminable train of thought, and to substitute for a time, as his only object in life, the care of his health and a regard for what he eats.

The rationale of the menu is cleverly explained. Beginning with soup or meat broth, we make use of a known chemical excitant of gastric secretion; after this come the really nourishing foods—flesh meats of different kinds served in various ways; or, in the case of poorer people, stews made with vegetables, and, therefore, rich in carbohydrate material. The chief meal generally ends with something sweet, and everybody knows that sweets are pleasant. The repast, begun with pleasure, consequent on the pressing need for food, must also, notwithstanding the stilling of hunger, be terminated with an agreeable sensa-

tion. At the same time, the digestive canal must not be burdened with work at this stage; it is only the gustatory nerves that have to be agreeably excited. This sequence of foods, from the standpoint of physiology, is quite rational.

The many researches based on his work, the frequency with which his name appears in medical literature, indicate the fulfilment of Pavlov's wish that his work may serve as a stimulus to others.

He believed the final triumph of medicine can only be achieved by laboratory experiment. The progress of medicine will go hand in hand with the care and attention paid to its experimental departments.

In recognition of the value of his contributions to scientific medicine, Pavlov in 1904 was given the Nobel prize.

30 N. Michigan Blvd.

DIABETES MELLITUS—WHY DO GLYCOSURIA AND ACIDOSIS INCREASE DURING WORK IN SOME DIABETICS?—A SUGGESTION IN TREATMENT.

MAX BENJ. LEVITON, M. D., S. B.,
Assistant in Medicine, Rush Medical College.

CHICAGO.

Hitherto, the glycosuria produced during work in diabetics (particularly of the juvenile type) has been attributed to increased nervous discharges, in spite of the fact that the added utilization of heat calories should cause a decreased glycosuria, due to increased combustion of sugar. The above factor has frequently interfered with completeness and permanence of cure and might precipitate marked glycosuria, acidosis, loss of weight, coma and death.

The writer believes that the cause is partly to be found in mobilization of tissue fat during work. That the normal body can mobilize and use tissue fat during muscular activity, is known. Is the diabetic of this type, although able to mobilize fats, unable to utilize them, so that they form fatty acids in the liver (acidosis)?

Pavy and Bywaters,¹ a few years ago, showed by laboratory experiments on animals, that perfusion of the liver with sodium carbonate will arrest the change of glycogen to glucose (in the

hepatic cells), as though the liver had been frozen, when the glycogen remains intact (not mere cooling, however, which may assist the transformation). The accumulation of acidity, however, changes the glycogen to glucose and the latter is poured out of the liver. The liver has to be alkaline, or nearly so, to be able to hold glycogen. That is why one sees cases which, after storing up glycogen, ingest excess fat, or overwork themselves, mobilizing extra tissue fat, in addition to that ingested, acquire acidosis, which in turn (the diacetic acid being formed from fat in the liver) causes a sudden high percentage of sugar arising chiefly from that stored in the liver, to be excreted in the urine. Hence arises a vicious circle (*i. e.*, no glycogen in the liver to assist fatty acid combustion), the acidity accumulates (mostly in the liver), there is no longer an appreciable formation of glycogen and the sugar is excreted, with less and less fat and carbohydrate utilized.

This explains what may be called "reservoir diabetes," often seen in the juvenile type. The patient is fasted, the liver thus freed from an excess of fatty acids, and in the early stage of feeding some of the glycogen accumulates, burning some of the fats. Now the patient is fed bacon, cream and other fats, forming acids, and the "reservoir" pours out what glycogen has accumulated. Then the patient is fasted again. I have seen cases receive close to a quart of cream with bacon, olive oil (with salad), butter, etc., daily and have not marveled at the glycosuria and acidosis that inevitably appear.

Closely connected with these facts are the suggestive data² concerning the relative fat and glycogen content of the liver.

1. In a young man:
762 p. m. water.
25 p. m. fat.
152 p. m. protein, etc.
61 p. m. extractives.
2. In a healthy suicide:
606 p. m. water.
212.8 p. m. fat.

"The amount of glycogen and fat may vary considerably, which is due to the fact that the liver is a storage organ for these bodies, especially for glycogen." "The quantity of glycogen in the liver depends essentially on the food." "The quantity may amount to 120 to 160 per mille. When the liver is rich in fat, the glycogen values are low." Rosenfeld and Bottazzi (*loc. cit.*, p. 384) have shown that a liver rich

1. J. Phys., 1910, xli, 168.

2. Hammarsten: Physiol. Chem. (trans.), 1914 edition.

in fat is habitually poor in glycogen. In the above example, there is a difference of 187 grams of fat content between two livers. An average liver of 1705 grams may contain after carbohydrate feeding, 204.6 grams of glycogen (approximate). When the liver is full of fat or the seat of fatty acid formation, the blood plasma has to act vicariously as the reservoir for glucose, which it cannot hold and must excrete in the urine.

It is absurd to overfeed our patients with fat, particularly when they are at work and unable to utilize the added mobilized tissue fat, that appears during body activity (if the above premises are true). I believe that a very few grams of extra fat may precipitate an acidosis in certain types of cases.

On the above grounds, therefore, the writer recommends for this type of diabetes, the following:

1. Restrict fats more or less.
2. Keep up the "alkaline reserve" of the body and blood plasma, which has recently been shown to fall very low in some of the cases. The liver should be kept constantly alkaline, or nearly alkaline.
3. Aim to keep the liver storing more glycogen and less fat. Where grams of sugar intake count, grams of glycogen capacity of the liver form an important item. (This may explain some of the success of starch or potato cures.)
4. Remember that the chief value of rest in diabetes may be largely due to restraint of subcutaneous and other tissue fat mobilization.

The physician who would treat diabetics on these lines should realize the following important points:

1. You cannot replace fat by glycogen in the hepatic cells in one day or one week, but you may be able to accomplish the same in two or three weeks. When you once have a glycogenized liver, keep it so (*i. e.*, keep it alkaline to avoid acid destruction of glycogen). The glycogen that you have caused to be stored at so much pain and trouble for weeks, may, in one unfortunate day, be completely discharged from the liver lobules, allowing fats and fatty acids to pile up. These principles should be of value, no matter whether the cases are fasted, on pancreatic opotherapy, starch, oatmeal or potato diet, or any other method of treatment.

2. The restriction of fats, the writer has

found, allows proteid to be taken care of and makes feasible the use of pancreatin or other pancreas preparations, by bowel and possibly orally, in cases which would not otherwise react well to the organotherapy.

3. Courage is necessary to push the use of alkalis until the urine is no longer acid, but at the same time one should be on guard against acidosis on the one hand and alkaline edema on the other.

In conclusion, although the present day trend is away from alkalis, there are a class of cases with low alkaline reserve, which might do better with long continued alkaline therapy. (Whether sodium bicarbonate, magnesium oxide, etc., are in addition, calcium spasers in the system has not been proven.) Physical labor may precipitate an acidosis and glycosuria which may not be due entirely to nervous factors.

MENTAL MECHANISMS.*

B. F. WILLIAMS, M. D.,

Superintendent Nebraska Hospital for Insane.

LINCOLN, NEB.

Man's mental state is the product of his experiences, his ability to associate the concepts of the past with the present constitute his powers and limitations in creative effort.

The artist of the movie world has discovered the key to success in his field of endeavor, that of introducing into his film the feature which arouses the instinctive impulses of his audience. The great serial stories are woven about those characters who by their conduct are reacting to primitive impulses. The means of defense adopted by the characters fascinate the audience, and the tact and cunning employed by the artist in an effort to adjust his character in response to primitive impulses make for the success or failure of the feature.

The most universal law of biology is the tendency of all forms of life to adapt themselves to the environment in which they are placed. All persons are reared in an environment quite similar, resulting in quite uniform modes of adaptation. To the man whose environment requires the exercise of certain attributes in the psychological field there comes to him strength in ratio to the demand. This adaptation is in harmony with a similar law in the physical development of

*Read before the fifth annual meeting of Alienists and Neurologists at Chicago, June 20, 1916.

all animal kind. The psychological adaptation may enable the individual to progress until adult life is reached, when new demands and constantly altering conditions create new impulses for which his mental mechanism may be inadequate and if this type of adaptation cannot give the impulse the necessary outlet, a psychosis results.

This failure to adjust developing rather abruptly in one who has always possessed the power suggests some change in physical structure. It is only natural to search for the anatomic basis of any disorder, and while gross lesions of cellular structure of the degenerative type are readily distinguished, it is quite probable that our limited knowledge of cell life in the cortex will preclude our detection of definite changes in those cases which we elect to designate as functional. With primitive instinct forming the basis for conduct in normal people, we must recognize instinct as capable of lending color to many psychoses of toxic and organic origin, and further capable of directly producing psychoses in other cases where organic changes do not exist. The organism through life does not retain the power to adapt. Channels once open afford the natural outlet for impulse, and the tendency for persistent outlet through definite channels give rise to what we are pleased to term habit. The individual who permits this instinct to control his conduct is paving the way for a psychosis, and serious results await the one whose impulses based upon fear and sex instincts are not properly censored.

Fortunately, man possesses the power to inhibit the reproduction of stored precepts capable of exerting a baneful influence upon the organism or inclined to provoke a course of conduct out of harmony with his environment and the accepted conventionalities of modern civilization. The inhibition of certain impulses and the voluntary control of the threshold of consciousness results in the diverting of simple instinctive conduct into channels of usefulness closely linked with the progress of the individual.

When this process directs one into a mode of behavior entirely conventional and calculated to meet the demands of society and modern business, we are pleased to refer to his reaction by the use of the term intelligent conduct in counter-distinction to unintelligent or insane conduct. What we really mean to convey is that the individual conforms to conventional modes of living, acting and talking.

Instinct has been described as the innate tendencies of the members of a given species to react to definite stimuli with a type of conduct suited to the situation without first having learned the necessity for such conduct by having previously faced situations calling for the reaction.

The mechanisms underlying behavior in the lower forms of life are crude and manifested in very simple forms of conduct. Stimuli call forth appropriate reactions almost as automatically as the pressing of a button extinguishes a light. As we advance in the scale of animal kind the reactions increase in complexity in direct ratio to ever increasing requirements, until in man we find the capacity for modifying instinctive reaction to suit the ever altering condition.

By reason of this power of adjustment we assume that man is able to meet the very complexed requirements of every-day life. The concrete statement will meet with no opposition among those who recognize man's psychic powers, but the acceptance of this calls for the assumption of a definite mental mechanism working to accomplish this result.

In the processes of adjustment let us consider first an instinct found in all forms of animal life and well preserved in man, the instinct of fear. Animals low in the scale are frightened by stimuli emanating from any sense impression and, as their faculties for adjustment are limited, they retain this reaction instinct through life; but in man, while the innate disposition to fear reaction is not far different from that in animal, the mechanism of adjustment has produced in him a modification in the cognitive part of his instinct.

In the constantly widening knowledge of the sources of danger there develops in him an increasing number of sense impressions capable of arousing instincts of fear and the reaction of flight, and as man's increase in forms of conduct or behavior keeps pace with his ever increasing knowledge, the factors of experience, habit and inhibition produce in man an exceedingly complex form of fear reaction.

Much of the abnormal behavior observed among the insane as well as the sane is but the expression of a modified fear reaction. Physical combat for defense is not the only mode of defense with which man may react. Flight is not the only means he may embrace to prevent personal harm. The individual who steals, who

lies and deceives, is in fact reacting to the innate instinct of fear by what he believes an appropriate type of conduct. As a motor difficulty may depend upon an affection involving the afferent, efferent or central part of a reflex arc, so may mental mechanisms be involved in the cognitive effector or conative portion.

With this conception of mental processes we are able to account for some of the mental disorders that may arise from purely mental source. We may regard pleasure and pain as a part of the effective portion of every primitive mechanism of adjustment operating by cutting short those forms of activity which are baneful in character and prolonging those which are pleasurable. The value of this mode of reaction lies in their power to protect the organism against harmful influences and to favor the influences which are beneficial.

That there exists within the body stored energy which may be converted into any mode of activity we may elect is quite obvious. The ability of the organism to endure long strain and stress is apparent on every hand, manifested in illness, in times of physical endurance and intense mental effort. This fact forces us to admit the existence of potential energy in reserve, under normal conditions, capable of sustaining the organism through periods when the process of up-building must be suspended and for the further purpose that continuous effort applied in a given line with a culminative effect may continue uninterrupted. The existence of this store of energy, however, suggests a possible source of harm when converted into psychic force, and admitted to an avenue for outlet through channels undesirable. Such force exerted without the proper inhibition gives rise to thought and conduct recognized as abnormal and out of harmony with environment.

In observing a mental case of alcoholic origin we find fear a prominent symptom. This drug, like many others, acts upon the perceptive mechanism, making it very difficult to distinguish between the imaginary and the real, thus inviting hallucinations of a terrifying character and delusions persecutory in type, through the mechanism of the primitive fear instinct.

The paranoid types manifest fear instinct unrestricted and in their reactions develop delusions which dominate the individual. By reason of

the seeming logic of these delusions the individual is seldom recognized until some overt act brings him in contact with the law; it is then discovered that the individual's life has been made up of a series of reactions prompted by the fear instincts and based upon the effort of the individual toward adjustment to an abnormal perceptive mechanism.

We may also regard the criminal as one who owing to constitutional defect, the instinctive forces being illy directed, finds outlet through improper channels, giving rise to anti-social conduct.

The mental manifestations of the involuntional melancholia and the senile cases support the theory that the instinct of defense or the fear impulse remain intact so long as life exists.

The influence of the fear impulse upon the internal secretions indicates the profound effect it exerts on the organism. The prostitution of this normal impulse through the abnormal excitation may induce chemic changes that will only be explained when our knowledge of the chemistry of internal secretions is elaborated.

The orderly arrangement of complexes upon a background of feeling-tone constitutes or determines character, personality and individuality. The creation of the proper feeling-tone is the function of education. Freud has defined a censor of consciousness, the function of which is to repress unethical and unconventional experiences. The resistance offered by the censor is sometimes compromised admitting to consciousness the experience either in symbolic form or by conversion. That these repressed complexes are the basis of many a peculiar manifestation through the agency of the sub-conscious is rather generally accepted. That these complexes owe their individuality to the coloring offered by the defense, reproductions, or sustenance instincts, is quite obvious. Thus the influences of the primitive instincts in all types of mental disease make for a complicated symptomatology and a rather confusing train of mental manifestation, each resting upon the foundation of primitive instinct, but oftentimes associated rather loosely or by symbolism.

If psychic trauma directed toward the sex instinct in the early years of life creates so profound an effect in an individual that the repression of the experiences produces symptoms which entirely dominate the patient, rendering him

a subject to neurasthenia, psychasthenia, hysteria or obsession, then why not regard traumas directed toward the defense instincts "expressed in fear" as capable of influencing the psychic processes of the individual throughout life?

The disciplinary methods used by mothers and by teachers in dealing with their children are a series of assaults against the natural reactions. The mythologies of youth are decoys to inveigle the child into proper channels of thought and to stimulate creative and elaborate endeavor.

The fantasies or threats of physical violence and personal harm, however, serve no such useful purposes.

The feeling-tone cultivated by repeatedly arousing the child's sense of fear is an abnormal tone, and productive of morbid processes.

The mental mechanism involved in the building of childish fantasies are the ones employed in day dreaming and castle building, the logical termination of which is a loss of keen discrimination in dealing with truth and fiction.

From the above observations we feel justified in formulating the following deductions by way of conclusion:

First, the child may be so reared that he develops abnormal fear reaction, becomes susceptible to stimuli arousing the instinct and develops a suspicion or distrust harmful to the organism.

Second, that this type of reaction is in evidence in many forms of mental difficulty is a matter of common knowledge.

Third, that it is a legitimate product of unwise methods of discipline in early life and the faulty methods of reacting to a normal instinct created for self-preservation.

Fourth, that as a psychological factor it is worthy of consideration in the home, in the school and in the study of mental disease.

CEREBRO-SPINAL LUES TREATMENT.*

CHAS. D. HUMES, M. D.,
INDIANAPOLIS, IND.

At the outset, I wish to define the treatment under study, as an attempt to restore the patient entirely or in a degree to his natural condition and surroundings, and not merely to attempt

the correction of a plus blood or cerebro-spinal fluid Wassermann, one or both obtaining.

To view the human body as governed by definite biological laws, and not properly considered as a test tube into which all qualities of drugs can be poured, I have advocated and employed the most intensive methods of treatment and have been guilty many times of watching too closely the bio-chemical reactions, without regarding equally important the truly great factor, i. e., the patient's general health.

There is no phase of treatment of the sick demanding such tactful consideration as the inflammatory diseases of the central nervous system, and among the latter nothing produces such profound symptoms as syphilis. We rightly consider lues as a basic factor in our neuropsychasthenic cases; hard to demonstrate clinically and bio-chemically, but conditions so frequently responsive to mercury as to make all eligible to such treatment. The field seems limitless and demonstrations of syphilis so varied that an attempt to cover it entirely in this paper is both impracticable and impossible.

Much of uncured and incurable syphilis today points to lack of knowledge before the discovery of Schaudinn, the demonstration of Noguchi and Moore and incomplete examination and treatment. The question of family tendency is very important to consider at this time, as it has been observed frequently that families present similar pathology after infection—given lues—several brothers are tabetic, epileptic, or paretic, a neuropathic tendency that is frequently prevalent and which means, to my mind, that such groups, unless most consistently treated, will follow a retrograde change, knowledge most valuable in outlining the patients' treatment and for planning the patients' future.

The entire scheme of treatment is directed toward, *first*, the control of toxemia and its attending inflammation; *second*, toward assisting nature to compensate for what has been lost of nerve tissue and physiological components.

Blood stream pollution can best be controlled by salvarsan, but vascular crises must be kept in mind in its use. Some reports seem to indicate the possibility of central hemorrhage being hastened by its use. To this I will not subscribe, but rather to its abuse, i. e., to the employment of full initial doses. The minimum

*Read before the fifth annual meeting of alienists and neurologists at Chicago, June 20, 1916.

dose for general lues should be maximum for brain and repeated at frequent intervals. The conjoined spinal puncture I consider extremely valuable by this means, allowing certainly a freer osmotic process at the choroid, granting that the cerebro-spinal circulation is intact. In early C. N. S. involvement, it is usually sufficient to attack the blood stream singly and defer intro-spinal injections; however, an early basilar involvement warrants the autogenous serum. The mention of technique of various treatments, preparation of serum is unnecessary to this body, but of the character used I must remark that only the autogenous seems practical, valuable and safe. I have frequently given serum from other patients with no untoward results and it seems none should come, but a colleague reports a disastrous result which unfortunately no post-mortem substantiated.

I consider horse serum unnecessary and unsafe. If a patient cannot lose enough blood for serum preparation, he needs more attention paid to his hemopoietic than to his central nervous system.

Mercury, in whatever form is convenient and best borne by patient—it is a personal matter to be settled by each—so long as the patient gets mercury to the point of tolerant safety all is well. Iodides I cannot consider seriously in the treatment of any form of specific central nerve involvement unless we can allow them a certain liberating effect, making the spirochete more accessible to the anealic or mercury.

This scheme of medication is accepted by all who work in this field, excepting some whose opinions I respect very highly indeed, who have never used salvarsan in any form and never will, charging that it makes for early hemorrhage and tabes and is a general vascular weakener.

Most important is the absolute control of the patient. The specific nervousness, the vague apprehension, morbidity, constant motor agitation demand institutional treatment or restraint and even with the most constant watchfulness, their destructiveness, run-away tendencies, make them a source of worry in their own homes and a menace to public safety. As we proceed in the scale of tissue involvement, the more attention must be paid to the habits, environment, business, domestic cares, diet, etc.

Any routine of specific treatment is unjustly

given which does not provide comfort, quiet and as great a degree of peace of mind as conditions will permit.

He who sets about to repair the parietic brain or tabetic cord, with drugs alone, claims a super-human power, but many times the border line cases are pulled up and saved from complete annihilation—such case reports are made with mistaken diagnoses which claim a repair of tissue that as nerve tissue is functionless.

In short, we must early determine the classification of tissue involvement and carry on intensive plus general treatment in meningo-vascular cases hopefully; in parenchymatous cases as a matter of duty, hoping that the process may be stayed and enough cortical cells remain unscathed to constitute a semblance of control and intelligence.

The treatment of incipient tabes deserves especial mention because much good has been done by general and direct treatment. The relief of pain and with it, restored nerve balance, seems the most possible and regular result and no symptoms but these have been relieved in my experience by any sort of treatment. Gummata, if in operable site, are to be treated as tumors if a reasonable period of treatment does not suffice; the treatment of cranial and spinal nerve lesions is the treatment of the inflammatory changes, or pressure with arsenic and mercury and by rachientesis.

The irregular pupil of cerebro-spinal lues is a sign probably of vascular changes—its inconstancy, i. e., its variable reaction, indicates the uncertainty in prognosis and one should not forecast from one examination or from one favorable laboratory report.

The fundus is a most valuable index of both condition and progress of central nervous affections and the retina almost correctly spells the condition of vascular system, the cerebral circulation and cord status.

If there is any short route to the control and correction of actual central nerve lues, I do not know it.

There must be a constant checking up of laboratory and clinical findings and avoidance of set rules for dosage and general routine. The variance of age, environment, habits, race, must be weighed with the sum total of what the body generally shows.

If a chronic aortitis, hepatitis, splenitis, osteitis obtains, as it does very often, as much or more treatment toward the relief of these is needed as toward the amelioration of inflamed nerve cells.

We have heralded salvarsan as the sterilisans magna, but is it? We have accepted mercury always as the true specific, but is it? How explain the long remission of untreated paresis so-called, unless there is a natural defense sufficient to produce a remedial agent. It is my belief in natural phenomena of this sort—in actual cure of disease, if you please, which warrants the use of autogenous sera intravenously with mercury or arsenic, or mercury intraspinaly and intra-ventricularly.

The completion of treatment is a question which concerns the average patient or the responsible member of the family and is indeed hard to even justify in its answer to the laity, who, taught to view old diseases as having regular courses, accept reluctantly the necessary explanation of laboratory-clinical control and nothing but the morbid fear which attends lues keeps them under treatment. Personally, I have dismissed no person as cured, but keep them under observation and hold out as the only hope that if there is a repeated negative Wassermann of blood and cerebro-spinal fluid occasionally provoked by 606 over a period of two or three years, that as near a perfect result as possible had been obtained; no luetic brain or cord, however slightly evolved, or how completely cured, can be counted as normal, but if the lesions can be rendered sterile and inactive, the remaining tissue can compensate to a remarkable degree and after all approximate the normal.

It is not my intention to discuss drugs or their manner of administration, because the profession must certainly be united on this subject, if on nothing else. I have enjoyed speaking with and hearing from a number of our unquestionably best men in the country and with the exception of one who stands alone, in questioning the value of salvarsan, they look upon the treatment as naturally following only one course, namely, by the intra-venous, intra-spinal, intra-ventricular route of salvarsan and mercury to be given as best result can be obtained.

The real occasion for this report arose from my own experience, cases in which I have been misled by laboratory findings as perfectly neg-

ative for a long period of time and then suddenly bursting out clinically and bio-chemically; others have shown all of the clinical findings and responded only to the treatment of their general health.

In all eagerness to work wonders with drugs, we have very often forced common sense into the background. It behooves us to consider seriously the future of every case of cerebro-spinal syphilis, knowing as we do, and feeling as we must, that many of the milder forms clear up very rapidly under treatment and these have been reported as our magic cures, and because of the wonderful transition the patient has been allowed to slip out of our care, and I feel that these are the very cases that reappear after years of apparent health with the neurological display that is both illuminating and tragic.

Noguchi insists that he has found a spirochete of this so-called mild type repeatedly in the brain of paretics, and the case reports have shown an extremely mild early infection.

I plead for a general educational movement which instructs and teaches people that they are indeed sick when they have syphilis of the nervous system and rightly in need of a physician and should peacefully submit to routine of quiet, carefree living and give themselves over unreservedly to the dictates of nature's best hygienic laws. They have been taught to rest in bed with fevers and infection of every other sort, but have not been taught the value of having unqualified physiological assistance in specific infection.

We must also bear in mind that the population of our public institutions bears a remarkably close relation to our success or failure in the treatment of syphilis of the central nervous system.

A CASE OF JUVENILE GENERAL PARESIS.*

FRED'K C. POTTER, M. D.,

Pathologist, Central Indiana Hospital for Insane,
INDIANAPOLIS, IND.

Juvenile paresis, i. e., general paresis developing during childhood or about the time of puberty, until recent years was considered a rare disease. With increased facilities for diagnosis and a more carefully study of the idiot and feeble-minded group, today we consider the disease as uncommon.

*Read before the fifth annual meeting of Alienists and Neurologists at Chicago, June 19, 1916.

The first case was described by Clouston in 1877, since which time about two hundred and seventy-five cases have been reported by Alzheimer,¹ Hirschl,² Thiry,³ Mott,⁴ Marr,⁵ Idrac,⁶ Palancar,⁷ Kleineberger,⁸ Fairbanks,⁹ Hough,¹⁰ May,¹¹ Collet,¹² Riggs,¹³ Diller,¹⁴ Jelliffe,¹⁵ Laffer,¹⁶ Leonard,¹⁷ Leroux and Weinzeig,¹⁸ Alsimoles and Alberstadt.¹⁹

Kraepelin²⁰ states in his monograph on general paresis (1913) that it is not uncommon for him to be able to demonstrate four cases at one time in his clinic, and we believe that if the more or less common dementing states of children were studied with the aid of the present day laboratory methods, many more cases would be diagnosed.

After a careful search of literature, I have been unable to find any report of a case of juvenile general paresis in which the brain and organ tissues have been examined for the presence of the causal organisms of syphilis. Without attempting to summarize or discuss in detail the literature on this subject, I wish to report a case having a clear history of intrauterine infection, with deterioration beginning during the fourteenth and fifteenth year, with a clinical course of four years, the finding of double nucleated cells of Purkinje in the cerebellum, and spirocheta pallida in the cerebrum, cerebellum, heart, liver, kidney and spleen.

Case —. C. F., white male, aged 17 years. Admitted to Central Indiana Hospital, October 25, 1913.

Family History: Paternal uncle feeble-minded (inmate of Madison County, Ind., Poor Farm); two paternal aunts were insane and patients at Richmond, Ind., Hospital. Father, an alcoholic, is living as far as known. Mother, 36 years of age, is living but in poor health. At the age of 17 years, gave birth to our patient. She states that she had a rash over her entire body, accompanied by sore throat and ulcers in her mouth, while she was pregnant with this child. At 18 years of age, she married William N. Six pregnancies resulted in one miscarriage and five living children. Examination of her blood serum gave a positive Wassermann reaction. Mentally, she is somewhat deficient and makes frequent contradictory statements. A half brother, Clyde, aged 15 years, is very much under-sized (appears about nine years old); has a chronic coryza, high, narrow, hard palate and pegged teeth. Is dull mentally and has never advanced beyond the third grade in school. For two years has been stupid at times and so confused that he was lost on the street near home. His blood serum gave a positive Wassermann reaction. Half brother, Clarence, had a skin eruption, with ulcers of the mouth and throat and a coryza at birth. Only lived seven weeks. Cause of death: inanition. Half

brother, John, is said to have been healthy. Was accidentally shot by his brother Clyde, when five years of age. Half brother, Roy, aged five years, appears healthy, but has had a chronic coryza since infancy. Has irregular teeth, and a positive Wassermann reaction in the blood serum. Half brother, Albert, aged one year. Palate arch high; no teeth erupted.

Personal History: Born out of wedlock, in Madison County, Indiana, in 1896, at full term. At birth his body was covered with a rash, and later there were extensive ulcers in his mouth. Made no attempt to walk until after he was two years old. Later learned to talk. Never took an interest in childish games. Was raised by a farmer. Attended school from his sixth to thirteenth year, but only passed four grades. During the next two years gradually lost interest in his surroundings and in his work. In October, 1912, began to complain of pain in his head, which was worse on exertion. In March, 1913, became irritable and fretful. Late in September, 1913, after a period of depression, had a severe general convulsion and that night became violent and threatened to kill members of the family. He was confined to prison the next day.

On admission to the hospital, October 25, 1913, he was depressed and retarded; his pupils reacted poorly to light and his knee jerks were exaggerated. On December 18, 1913, he became noisy, restless and confused, and on the 23rd, had a series of general convulsions, which continued with intervals of twenty-four to forty-eight hours until January 16, 1914. Some of these convulsions were followed by transient paralysis of the right arm and leg. During the next six months he improved physically; reacted to auditory and visual hallucinations, and expressed some childish ideas of grandeur.

Mental examination at different times may be summarized as follows: Completely disoriented for time, place and persons; memory for remote and recent events very much impaired; train of thought irrelevant and incoherent; consciousness clouded; attention held with great difficulty; emotionally, is mildly exalted; expresses childish ideas of grandeur; at times reacts to hallucinations; test phrases are repeated with marked slurring and elisions.

Repeated physical examinations may be summarized as follows: Poorly developed, fairly well nourished, puerile, white male; epitrochlear and postcervical glands enlarged; teeth irregular and crowded together; hard palate, high arched and narrow anteriorly; fine tremors of the facial muscles and tongue; right pupil dilated and irregular; light reflex delayed in both pupils; deep tendon reflexes all bilaterally increased; tendency to ankle clonus on right side. Examination of thorax and abdomen, negative.

Blood serum gave strongly positive Wassermann reaction on three different occasions. The spinal fluid on two examinations gave increased globulins, pleocytosis (34 cells), strongly positive Wassermann reaction with .05 c.c. spinal fluid, and a typical parietic curve (5, 5, 5, 5, 5, 4, 2, 1, 0), with the colloidal gold test.

On September 15, 1914, he began to have a series of general convulsions which resulted in death from exhaustion on September 18, 1914.

Autopsy: (For details see clinical records)—thirteen and a half hours after death: The body is that of a fairly well nourished male, apparently about 15 years of age. The pupils are dilated, the right is irregular. The organs in the body cavity need only be described by mentioning their gross pathological diagnosis:

Circulatory System: Pericardial effusion; chronic pericarditis; eccentric hypertrophy and dilatation of heart; chronic fibrous valvulitis of the mitral valve; fatty infiltration of the heart muscle.

Respiratory System: Interlobular pleuritis (right); early broncho-pneumonia (right).

Alimentary System: Chronic perihepatitis; chronic venous congestion of the liver; chronic hepatitis.

Genito-Urinary System: Chronic capsulitis of the kidneys; acute tubular nephritis; juvenile genitalia.

Glandular System: Remains of fetal lobulations of the spleen; chronic perisplenitis; chronic trabecular splenitis; peribronchial adenitis.

In the microscopical study of sections from heart, liver, kidney and spleen, stained by Noguchi's modification of Levaditi's method, spirochaeta pallida were found in the connective tissue and adventitia of some of the blood vessels.

Head: Is covered with coarse, black hair. The scalp is a little thicker than normal, contains considerable fat. The skull is very hard, almost ivory-like. Diploe is scant. The dura is firmly attached to the calvarium and to the underlying membranes for a distance of 5 cm. on either side of the great fissure. There is marked edema of the subarachnoid space. The small veins over the cerebrum are intensely congested. The pia-arachnoid shows a moderate amount of general thickening, considerably more marked over the sulci. There is practically no thickening over the tips of the occipital lobes, but it is marked over the entire base, especially just back of the chiasm and over the pons and medulla. The pial thickening is well marked on both the inferior and superior surfaces of the cerebellum. The ependyma of the floor of the fourth ventricle and middle portion of the floor of the lateral ventricles is distinctly granular. The vessels at the base show no thickening. The convolutions in both frontal regions are narrow with broad sulci. Those in the parietal region are broad. The cortex generally is firm. Weight of brain, 1,300 grams.

Spinal Cord: Shows general congestion of the vessels and feels firm to the touch.

After hardening the brain and cord in 10 per cent. formalin, sections were taken from the right inferior frontal convolution, the right precentral gyrus, the right calcarine region, the right hippocampal region, the cerebellum, second cervical segment, mid-thoracic and lumbar regions, the left optic and third nerves and the choroid plexus.

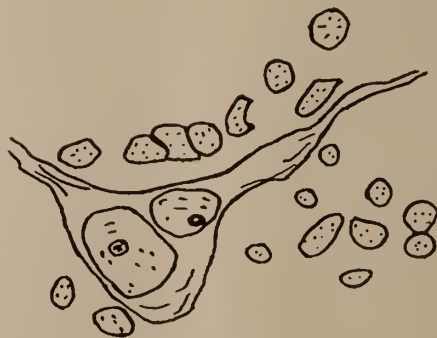
After dehydrating, imbedding in celloidin and sectioning, these tissues were stained with hematin and eosin; thionin; Unna plasma cell method; modified

Weigert's; and Noguchi's modification of Levaditi's stains.

Microscopical Examination: Section from right inferior frontal convolution: The pia-arachnoid is about three times the normal thickness, its vessels are thickened and their perivascular lymph spaces packed with lymphocytes and plasma cells. The vessels of the cortex are increased in number and the walls of the larger ones show proliferation of the intima and adventitia. The perivascular infiltration is even more marked than in the pia. (These changes are best shown in sections stained by Unna plasma cell method). All the layers show very marked cell devastation. In the third, fourth and fifth layers, a few apparently swollen nerve cells with very large eccentrically placed, faintly staining nuclei are seen. Here and there groups of neuronophages with the shell of a nerve cell are seen. The glia cells are increased in number and stain deeply. With Weigert's modified stain, a few bands of degenerated nerve fibres are seen in the white matter, just beneath the gray layers. With modified Levaditi's stain, (counterstained with thionin), a good number of spiral organisms are seen in close proximity to the nerve cells. A few are inserted into the protoplasm of the cell. Many of the nerve cells contain amorphous brown, granular material. The glia cells and fibres show marked proliferation.

Sections from other portions of the cerebrum mentioned above gave the same general histological picture as that described for the inferior frontal cortex, except the changes were less marked and no spiral organisms could be found in the occipital cortex.

In the cerebellum, the arterial and pial picture resembles that described for the cerebrum. In addition, the cells of Purkinje are degenerated and many of them show two distinct nuclei and nucleoli (see drawing). Similar changes in these cells have been described in cases of juvenile general paresis by Straussler²¹, Trapet²², Rondoni²³, and Hough¹⁰, and accepted



as evidence of defective development of the nervous system.

Sections from three levels of the cord show the following microscopic changes: Chronic thickening of the dura, arachnoid and pia, most marked over the upper cervical segments; perivascular infiltration

with plasma and lymph cells, marked everywhere; degeneration of the cells of the anterior horns, especially on the left side; degeneration of a few fibres in both crossed pyramidal tracts, many fibres in Lissauer's tract and the posterior root zone.

The small arteries in the left optic nerve show marked perivascular infiltration. With Weigert's modified technic, nearly one-half the fibres show degeneration.

BIBLIOGRAPHY.

1. Alzheimer, A.: Die Frühform der progressiven Paralyse, *Zeitsch. f. Psychiatrie*, 1895.
2. Hirschl, J. A.: Die juvenile Form der Progressiven Paralyse, *Wien. klin. Wochens.*, 1901.
3. Thiry, C.: De la paralysie generale progressive dans le jeune age. *Dissert. de la Faculte de Med. de Nancy*, 1897-1898.
4. Mott, F. W.: Notes on Twenty-two Cases of Juvenile General Paresis, with sixteen post-mortem examinations. *Arch. of Neurol.*, 1899.
5. Marr: Juvenile General Paresis. *Lancet*, 1899.
6. Idrac, L.: Le diagnostic clinique de la paralysie generale juvenile. *Faculte de Medicine et de Pharmacie de Toulouse*, Vol. 1, 1905.
7. Palancar, J.: Peculiaridades de la Demencia Paralitica en los jovenes. *Revista Medica*, 1907.
8. Kleinberger, O. L.: Über die juvenile Paralyse. *Allg. Zeit. für Psych.*, Vol. LXV, 1908.
9. Fairbanks, A. W.: General Paresis in Children. *Jour. A. M. A.*, Vol. LI, 1908.
10. Hough, W. H.: A Case of Juvenile General Paresis. *Jour. of Nervous and Mental Dis.*, October, 1909.
11. May, J. V.: Juvenile Form of General Paresis, With Report of Case. *N. Y. Med. Rec.*, Sept. 3, 1910.
12. Collett, A.: General Paresis in a Boy of Ten. *Norsk Mag. for Laegevidenskaben*, November, 1913, Vol. 74, No. 11.
13. Riggs, C. E.: Juvenile Paresis Treated by Intraspinal Injection of Salvarsanized Serum. *Jour. of A. M. A.*, June 13, 1914, Vol. LXII, No. 24.
14. Diller, T.: A Case of Juvenile Paresis. *Cleveland Med. Jour.*, March, 1911.
15. Jelliffe, S. E.: Case of Juvenile Paresis. *N. Y. Neurol. Soc.*, April, 1913.
16. Laffer, W. B.: Juvenile Paresis. Report of Case. *Cleveland Med. Jour.*, September, 1914.
17. Leonard, E. F.: Case of Juvenile Paresis. *Ill. Med. Jour.*, June, 1915.
18. Leroux and Weinzeig: General Paralysis in a Boy of Twelve. *Arch. de Med. des Enfants*, June, 1915.
19. Alsimoles et Alberstadt: Juvenile General Paresis. *Ann. of Med. Psychology*, 9 S. T., XI, No. 3.
20. Kraepelin, E.: General Paresis. *Nervous and Mental Diseases*, Monograph Series, No. 14, page 145.
21. Strüssler: Die Histopathologischen Veränderungen des Kleinhirns bei der progressiven Paralyse, mit Berücksichtigung des klinischen Verlaufes und der Differentialdiagnose. *Jahrb. f. Psych.*, Bd. 27, 1906.
22. Trapet, A.: Entwicklungsstörungen des Gehirns bei juveniler Paralyse. *Archiv. für Psychiatrie und Nervenkrankheiten*, Berl., 1909.
23. Rondoni: Quoted by Trapet.

DISCUSSION

Dr. Edw. F. Leonard, Chicago, Ill.: Some time ago I reported one case of juvenile paresis. The father of the patient was a syphilitic. Now there have been about 250 cases on record of juvenile paresis and I really believe there are more. The report of feeble-minded admitted to institutions in 1910 were over 60,000 with all kinds of psychoses; 327 were under 15 years of age; 17 of these had general paresis, 11 males and 6 females between the ages of 1 and 19; 2,539 patients were admitted; 47 of these were general paresis. I remember one case in which the sister had goiter and syphilis; the mother a positive Wassermann; the father a positive Wassermann, and the boy finally died of general paralysis.

Dr. Tom A. Williams, Washington, D. C.: It does not seem every syphilitic becomes a general paretic.

The work of the medical school conducted for the last three years seems to show that there are at least 3, possibly 4, distinct strains of spirochaetes which have different reactions and elect different portions of the nervous system. That, of course, is not settled, but it becomes an interesting problem at present in the efforts to find the etiological factor of paresis.

In the early conception of paresis, it was thought to be a frontal lobe conception, whereas a careful examination tends to show that it is a general invasion and sometimes, indeed, invades the projection areas more extensively than the association areas. There was in this case, as happened, a relative sparing of the occipital area, just as in some other cases there may be a sparing of any area, none in particular, but some area. We do not know why a particular area should be more spared than another—and it seems to me that we are not able to lay down any law that general paresis is a disease of any particular region.

Dr. Thos. H. Leonard, Lincoln, Ill.: It is my opinion that juvenile paresis is by no means as frequent in occurrence as paresis in adults. It is, however, more common than the reported number of cases would indicate. My deductions are based upon experience with the feeble-minded. Before the time of the Wassermann, syphilis was considered as an unimportant etiological factor in its relation to feeble-mindedness, such an authority as Ireland stating there was only a relationship in 1 or 2 per cent of the cases. We now, with the aid of the Wassermann, believe that a fairer percentage would be between 6 and 8 per cent. At the present time we have on record 169 positive Wassermann's on the blood of our children; 28 positive spinal fluids; and 17 in whom the blood and spinal fluid were both positive. Of this number seven have shown well marked symptoms of juvenile paresis, and in one of this number we have been able to sustain our diagnosis by histological examination of the brain, and hope that we may be able to report at a later date on all of these cases.

I am convinced that a number of cases are not diagnosed, especially so in a routine examination when the Wassermann is not made. In the past only those cases that showed the characteristic evidences of congenital syphilis were suspected as possibilities for juvenile paresis, while as a matter of fact we find syphilitic cases with those signs are only a small number of the total.

It should also be borne in mind that cases on entrance who do not give evidence of juvenile paresis may later develop this condition and escape detection. The frequency with which speech defects, inco-ordination, spastic paralysis and other neurological findings that occur in juvenile paresis are met with in non-syphilitic feeble-minded children makes differential diagnosis very difficult. I believe by following up the cases that give positive Wassermann upon their blood, we will be able to diagnose juvenile paresis where it has previously escaped notice.

REPORT OF A CASE OF BILATERAL LENTICULAR DEGENERATION.*

MAX A. BAHR, M. D.,
Clinical Psychiatrist, and

FREDERICK C. POTTER, M. D.,
Pathologist, Central Indiana Hospital for Insane.
INDIANAPOLIS, IND.

A definite symptom complex for lesions of the lenticular nuclei was established by Wilson,¹ in his comprehensive monograph in 1912. Since that time, Cadwalader², Hamilton and Jones³, Farnell and Harrington⁴, have reported cases with necropsy, and Sawyer⁵, a case without autopsy, which fulfill most of Wilson's requirements.

Cadwalader⁶ and Spiller⁷ have recently called attention to the relation of pseudosclerosis to lesions of the lenticular nucleus, and Rhein⁸ has reported a case of extra-pyramidal paralysis with a lesion in the lenticular nucleus.

Time will not permit us to attempt to further review the literature of these interesting lesions.

We wish to report a case showing some of the symptoms of Wilson's syndrome associated with a residual paralysis, in which at autopsy lesions of both lenticular nuclei were found.

G. W., male, white; age 56 years; admitted to Central Indiana Hospital, August 20, 1914.

Family History: A maternal uncle was paralyzed for six years, and died at the age of 84; two of his daughters (cousins of our patient) suffered with progressive paralysis of four and five years' duration, beginning before their 60th year. Patient's father died suddenly at 52 years of age from "heart failure." Mother was paralyzed at 69 and during the six years she lived, showed many of the same symptoms as our patient. One brother died at 70 years, after suffering with a progressive paralysis for three years; his son (nephew of our patient), became insane at the age of 23 and died in a state institution three months later. A sister died at 64 years, after being paralyzed for a few weeks. A brother, after suffering for two years with a paralysis characterized by remissions and relapses, died at the age of 65 years. A brother, while preaching, developed paralysis of the tongue. During the next five years the paralysis gradually extended to all parts of his body. He died at 60 years of age. Two brothers, 58 and 52 years respectively, are living and in good health.

Personal History: Our patient was the sixth child in a family of seven. Early life was uneventful. He graduated from college; taught school; became a finisher in a furniture factory; a commercial traveler; a lawyer; a life insurance agent, and finally a prac-

titioner of "Manual Healing." Used tobacco to excess. There is no history of venereal disease, or of excessive use of alcohol. Married at the age of 32 years and became the father of two children.

Patient's present illness began September 6, 1911, when on attempting to get up, he found his right side paralyzed and that he could not speak distinctly. He improved rapidly and in six weeks was practically normal. However, he was unable to resume his "Manual Therapy," on account of inability to use his hands effectively. On August 12, 1912, his left side was paralyzed. In a short time, he partially recovered but had to use a cane to get about. He became peevish, fretful, depressed, and developed ideas of persecution. He threatened suicide, and would laugh or cry without apparent cause. He was sent to the City Hospital for a short time and admitted to the Central Indiana Hospital, August 20, 1914. At this time, he showed the residuals of a left sided paralysis without contractions. His face was mask-like and expressionless. His deep tendon reflexes were exaggerated, a little more so on the left side, and the muscles of his extremities spastic. There was some ataxia. Coarse tremors of the muscles of the extremities and face were present when voluntary movements were attempted. Dysarthria and dysphagia were present to a slight degree, making the speech slow, and attempts at swallowing difficult. There was no evidence of cranial nerve involvement. Examination of the thorax and abdomen was negative. Wassermann reaction on the blood serum was repeatedly negative, and all tests (globulins, cell count, and Wassermann reaction) of the spinal fluid including the colloidal gold test, were negative.

During his residence in the hospital he gradually became more and more spastic; his dysarthria so marked that his attempts to speak became mere jumbles of partly articulated words; his swallowing so difficult that only liquid food could be taken, and finally, he was unable to swallow at all. Emotionally, he was very unstable, laughing or crying, at times a combination of both, without apparent cause. When his speech was not understood by the physicians or attendants, he became very angry. He never manifested any hallucinations or delusions; his attention was easily held; was well oriented, and there was no apparent dementia until a short time before his death. During the last three weeks of his life, he became so spastic and so weak that he was confined to bed. Death from exhaustion occurred at 4:40 p. m., April 21, 1915.

Autopsy, one and a half hours, post mortem. No contractures or atrophies are present. The organs of the body cavity are of but little interest and only their pathological diagnosis will be considered here.

Chronic pericarditis; mitral stenosis; moderate atheroma of the aorta; edema, congestion and old healed tuberculosis of lungs; moderate chronic perihepatitis; moderate perilobular cirrhosis of liver; chronic interstitial pancreatitis; chronic interstitial nephritis; chronic hyalo and trabecular splenitis.

*Read before the fifth annual meeting of Alienists and Neurologists at Chicago, June 23, 1916.

At necropsy, the brain showed a moderate diffuse leptomeningitis; moderate dilatation of lateral ventricles and distinct softening to the touch, of the nuclei forming the floor of the lateral ventricles. The cerebral vessels showed a slight general thickening. After hardening the brain in 10 per cent formalin, longitudinal sections were made, beginning at the level suggested by Marie.

On the right side an area of softening (4x2 mm) involves the posterior edge of the caudate nucleus, the lenticular nucleus and the anterior limb of the internal capsule. A similar larger area (7x2 mm) involves the putamen and inner edge of the external capsule; and a triangular zone of softening (5 mm) is found in the globus pallidus, just external to the genu of the internal capsule. Grossly, this last area seems to involve the fibres in the posterior limb of the internal capsule.

On the left side, small areas of softening are scattered through the lenticular nucleus, especially in the putamen, giving it a honeycomb appearance.

Section of the pons reveals a small area of necrosis in the pyramidal fibres.

Microscopical Examination: Sections from various areas of the cortex, stained with hematin, eosin, Van Gieson and thionin, show no infiltration of the membranes or about the small vessels, and only slight changes in the nerve cells. Sections from the right cerebral peduncle, the pons, medulla and cervical cord, stained by Weigert's method, show degenerations in the fibres making up the right pyramidal tract. Sections through the basal ganglia on both sides, examined under low power, show the lenticular nuclei to be made up of numerous irregular, scattered necrotic areas. These areas of softening vary in size, are larger in sections from the right lenticular nucleus, but more numerous in the putamen on the left side. Many of the necrotic areas appear as zones of debris, granular cells, and neuroglia cells arranged about a small artery. Other areas have no relation to the blood vessels. The vessel walls are not thickened and there is no evidence of perivascular infiltration. One of the larger softened areas in the globus pallidus on the right side extends into the anterior third of the posterior limb of the internal capsule. With Weigert's stain, the fibres in this area are degenerated. The nerve cells in the lenticular nuclei seem less numerous than usual and many of them are crowded with coarse, yellow granules.

Summary: Our patient comes from a family having what appears to be a very bad vascular history, though none of the cases were confirmed by autopsy. The patient suffered first with a right sided hemiplegia, with recovery, and no evidence of a lesion was found at necropsy. His second paralysis, coming on eleven months after his first attack, involved the left side. From this, there was only a partial recovery. He gradually developed volitional tremors, spasticity, dysarthria, dysphasia and an emotional instability. Death occurred three years and seven months after his first attack, and the autopsy revealed areas of degeneration in both lenticular nuclei, the

right caudate nucleus, and right internal capsule, without marked vascular changes. Microscopically, the liver showed perilobular fibrosis.

Our case differs in some respects from the clinical and pathological picture described by Wilson, but on account of the pathological findings without marked vascular changes, should be classified as a case of bilateral lenticular degeneration with involvement of the pyramidal tract.

BIBLIOGRAPHY.

1. Wilson, S. A. K.: Progressive Lenticular Degeneration. *Brain*, XXXIV, part 4, March, 1912.
2. Cadwalader, William B.: Progressive Lenticular Degeneration. *Jour. A. M. A.*, LXIV, No. 5, Jan. 30, 1915.
3. Hamilton, A. S., and Jones, H. W.: A Report of Two Cases of Progressive Lenticular Degeneration. *Jour. Nervous and Mental Dis.*, XLVIII, No. 4, April, 1916.
4. Farnell, F. J., and Harrington, A. M.: Progressive Lenticular Degeneration. *Jour. Lab. and Clin. Med.*, I, No. 8, May, 1916.
5. Sawyer, J. E. H.: A Case of Progressive Lenticular Degeneration. *Brain*, XXXV, part 3, February, 1913.
6. Cadwalader, William B.: Report of Three Cases Resembling Pseudosclerosis and Progressive Lenticular Degeneration. *Amer. J. M. Sci.*, CL., No. 4, October, 1915.
7. Spiller, William G.: The Family Form of Pseudosclerosis and Other Conditions Attributed to the Lenticular Nucleus. *J. Nervous and Mental Dis.*, XLIII, No. 1, January, 1916.
8. Rhein, J. H. W.: Extra-pyramidal Motor Disturbances. *J. Nervous and Mental Dis.*, XLII, No. 12, December, 1915.

DISCUSSION

Dr. G. W. Robinson: The doctor says that the patient did not have exactly Wilson's syndrome, but that he had involvement of other areas outside of the Wilson syndrome, involvement of the pyramidal tracts. These paralytic conditions affecting the motor functions can and do give positive symptoms. These lesions of the pyramidal tract really can give but the negative symptoms, symptoms of true paralysis. We know, according to Wilson and various other investigators, that there is a disturbance of function outside of the pyramidal tract, affected secondarily, giving positive rather than negative symptoms. I thank the doctor for his presentation. It is a subject we should study more. There are so many things we don't understand: Motor function and where we can locate the lesions. These papers are of value because they make us think. I presume you have all read Wilson's report in *Brain*? If any are present who have not read it, after reading this paper it will be valuable to read that very carefully.

Dr. F. C. Potter: I do not want to add to my paper. I was talking to Dr. Singer yesterday in the hope that he would be here to discuss the paper but he told me he could not, but made a suggestion that seemed to me new and extremely interesting. He agreed with me that this case was not vascular, showing actual changes in the blood vessel wall, but made the suggestion that primarily there must be an inflammation involving the vascular wall; that this inflammation was more marked at first on the left side, causing a right-sided paralysis; it was not sufficient to cause actual destruction and consequently we got recovery of the paralysis of that side. This second inflammation was sufficient to destroy the cells and fibers on the right side and cause the paralysis. He spoke of Rosenow's work in connection with specific reactions for certain groups of organisms. We know

that Rosenow has found certain kind of streptococci seeming to have an affinity for the tonsils and no matter what animals they are injected into they give the same pathology. His suggestion was that the inflammation primarily was due to some such infection. I think it is worth considering.

Dr. G. W. Robinson: I want to add one thing to the Doctor's remark concerning the discussion with Dr. Singer. Speaking of organisms, I recently had in my care a man, 64 years of age, who came to me with a left-sided paralysis. He could not dress himself; he had thickening of the tongue; face paralysis. A year prior to coming to me he had a tooth filled. During that time he had an abscess at the base of the tooth. He had it opened without stopping the condition. On examining the pus we found the streptococcus organism. He had the tooth extracted and within ten days he was absolutely well. It was not a pyramidal paralysis; it was not a spastic paralysis. It was a flaccid paralysis and yet that man was absolutely helpless. Also his mentality was lessened—his mental activity. It shows what these infections will do and that taught me a great deal about the teeth and what a little bit of infection can result in.

EDUCATION OF THE FEEBLEMINDED.*

GEORGE BLISS, M. D.,

FT. WAYNE, IND.

Every public institution for the feeble-minded in the United States was started by urging the plea to the legislatures that such an institution would educate the mental defective out of his deficiency and make him a self-supporting and productive citizen, and it was years before the fact was recognized that mental deficiency is a condition and not a disease like insanity, and the only help possible is an alleviation of the amount of defect by education. We can relieve and improve the defective, but we can never cure him.

Now opinions differ as to just how far it is well to educate these individuals in a literary sense. My own personal belief after twelve years of experience in caring for and training these people is that we all teach far too much along literary lines and far too little along vocational lines. Practically every child so defective as to go to a public institution for feeble-minded to get its training should remain in the care of that institution for the rest of its life; and, as a matter of fact, the greater part of them do so. Now the demands of a feeble-minded person living in an institution for anything of a literary

character are exceedingly small. Very few of the older and brighter inmates of a home for the feeble-minded read the newspapers, and those who do love most the murder trials and police court records, but give mighty little attention to current events. They are fond of love stories and detective stories, but seldom or never read poetry, history or biography. In fact, any reading, unless carefully watched and cultivated, is extremely desultory and only occasionally indulged in. Of arithmetic they need only so much as will enable them to do the simple tasks assigned them in the institution.

It is astonishing how few of our inmates keep track even of the day of the month and the year. They have very little money to contend with, so why attempt to teach them to compute interest? Weights and measures would be of more value to them were they able to estimate relative values. As a matter of experience, we found that we can trust but few of our inmates, however bright, to weigh or measure anything with accuracy.

One powerful reason for a certain amount of literary training of the defective lies in the desire of the fathers and mothers, friends and relatives of these people that they have schooling, demanding that they be at least tried in school; and I believe a reasonable amount of satisfaction is due these parents and friends.

It is still unfortunately true that the family doctor will persuade a mother or father to send a defective child to the institution on the false statement that the institution will "cure" the defect after a few years of education. These people must themselves be educated to the fact that there is hope only of relief. But meanwhile they demand, and if they are to leave the child where it belongs, must have, literary training for that child.

Writing and spelling sufficient to write home should be given, but beyond these elementary things I do not believe literary training for the feeble-minded should be carried. But when we come to consider the vocational features of educational training we have quite a different field. And by vocational training I do not mean at all the sort of vocational training that would be given to grammar or high school boys and girls, but the sort of manual training that will fit the feeble-minded boy or girl to take his or her place in the community life of the institution. The

*Read before the fifth annual meeting of Alienists and Neurologists at Chicago, June 20, 1916.

boys should be trained in paper cutting and sloyd because proficiency in those things makes them better helpers in the shops, gardens, and on the farm. The girls should be trained in dish-washing, sewing, laundry and general house-keeping because here is the field of their future industry. I believe also in a certain amount of fancy work and lace making because these furnish amusement to these non-reading girls and women, but I do not believe in the fancy work training carried to the extent it sometimes is in institutions to the exclusion of education along practical and useful lines.

The uselessness of spending time to teach a very defective child along literary lines was shown by a girl, or woman, rather, living yet, I believe, in the large institution at Waverley, Mass.; this woman would test, I am sure, about five or six years old and could, when I was there in the institution, spell readily probably over a hundred words, which she had been slowly and laboriously taught many years ago, but the curious part of it was that she could as readily spell every one of those words backward. She was quite unable to define any of them; that is, the words meant to her only an assemblage of sounds, and not ideas at all. It is only fair to Dr. Ferriald to say that no such effort as teaching a low grade imbecile to spell is attempted there today. This same woman had been taught to do certain elementary household tasks quite well under the supervision given her in the school.

The one fact to remember is that all the training we can give, whether literary or manual, can only help the defective to do some things better than he will without such training, and that all the training that can possibly be given will not furnish him with judgment, self-control, or sufficient common sense, to take his place in life as a responsible human being. His only chance of becoming at all self-supporting is in an institution, under trained supervision and careful oversight, where sufficient allowance is made for his short-comings, and sufficient direction and help given him to enable him to perform his tasks well.

I believe that the farm colony plan is the very best proposition known for providing practical employment for the feeble-minded boy and man, and perhaps for the girl and woman.

Provide one good educational institution in each state and then send these people, when

they have been trained, out on a farm where they can live in health and usefulness, the only life for which the feeble-minded are fitted.

DISCUSSION

Dr. Sawyer: Dr. Bliss has brought out two great truths in his paper. One is that you cannot cure the feeble-minded. You are spending a great deal of energy in trying to get them well. As I said a couple of years ago: You must consider these people against the normal. The normal people have twenty-six letters in their alphabet, whereas the feeble-minded have five or ten and they can only make that many combinations. The next point, that their training must be vocational. These people are going to be the drawers of water; you cannot change them; they never will be the time-keepers and it is useless to make them such. You must teach them things that they can do so that they can make themselves of as much value as possible. In a great many instances it will be very little. If they can become "one per cent" or "five per cent" people you have helped them a little bit.

Dr. Bliss (closing): About one per cent of the children who enter school are able to go to college, and yet every bit of our system of public school education, until within a few years, has been on the assumption that every child that entered school would enter college. I think 90 per cent of the children who leave grammar school leave with what literary work they can get, what work in numbers they can get, but with not one lesson of the practical things of every-day life. They are absolutely untrained so far as their ability to do things is concerned. I believe that is one of the most primary faults of our educational system today, and it is rather remarkable that for a great many years before any movement was made toward vocational education of children in public schools the institutions for the feeble-minded had found that they had to train these children in their own work, and so the institutions for the feeble-minded have been teaching vocational training and they have been better taught than anywhere else and this is a fact that is not generally understood or recognized.

A PRELIMINARY WELFARE REPORT OF CASES RECENTLY DISCHARGED FROM THE WATERTOWN STATE HOSPITAL.*

FREDERICK A. CAUSEY, M. D.,
EAST MOLINE, ILLINOIS.

Believing that a study of the effect of home environment would be interesting and beneficial, the author has prepared a partial report on cases

*Read at meeting of the State Hospitals Association at Peoria, Oct. 26, 1916.

WELFARE REPORT OF PAROLED PATIENTS.

Psychosis—	Duration of Attack.	Mos. Absent	Condition on Discharge.			Adaptation.	Signs of Subsequent Attack.	Self-Supporting.			Friends' View of Case.		
			R	I	U			W	P	D	N	I	U
Dementia præcox.....	6 months	4	R	I	.....	Yes	No	.....	P	.....	N	I	.....
Dementia præcox.....	12 months	4	.....	I	.....	Yes	No	.....	(P)	.....	.....	I	.....
Dementia præcox.....	14 months	3	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Dementia præcox.....	8 years	3	.....	I	.....	Yes	No	.....	(P)	.....	.....	I	.....
Dementia præcox.....	?	15	.....	I	.....	Yes	No	W	.....	.....	.....	I	.....
Dementia præcox.....	?	3	.....	I	.....	Yes	No	W	.....	.....	.....	I	.....
Dementia præcox.....	12 months	14 3/4	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Dementia præcox.....	3 weeks	15 3/4	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Dementia præcox.....	1 week	5	.....	I	.....	Yes	No	W	.....	.....	.....	I	.....
Dementia præcox.....	3 years	5 1/4	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Dementia præcox.....	1 month	6	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Dementia præcox.....	18 months	15 1/4	.....	I	.....	Yes	No	.....	P	.....	N	I	.....
Dementia præcox.....	20 months	7 1/4	.....	I	.....	Yes	No	.....	.....	D	.....	I	.....
Dementia præcox.....	8 years	10 1/4	.....	I	.....	Yes	Yes	W	.....	.....	.....	I	.....
Dementia præcox.....	1 week	3 1/4	.....	I	.....	No	No	.....	P	.....	.....	I	.....
Dementia præcox.....	?	3	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Total.....			1	15	.....	+15-1	+1-15	7	8	1	6	10	.....
Allied to dementia præcox	5 years	8 1/2	.....	I	.....	No	No	.....	(P)	D	.....	.....	U
Allied to dementia præcox	1 year	14 3/4	.....	.....	U	Yes	No	.....	.....	.....	N	I	.....
Allied to dementia præcox	6 months	4	.....	I	.....	Yes	Yes	W	.....	.....	.....	I	.....
Total.....				2	1	+2-1	+1-2	1	1	1	1	1	1
INTOXICATION.													
Acute, alcohol.....	3 weeks	2	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Acute, alcohol.....	8 months	4	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Chronic, alcohol.....	2 years	1	.....	I	.....	Yes	Yes	W	.....	.....	N	I	.....
Chronic, alcohol.....	?	11	.....	I	.....	No	No	.....	P	.....	.....	I	.....
Chronic, alcohol.....	?	15 1/2	.....	.....	U	Yes	No	W	.....	.....	N	I	.....
Chronic, alcohol.....	2 years	1 3/4	.....	I	.....	Yes	No	.....	.....	.....	N	I	.....
Chronic, alcohol.....	2 months	1	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Chronic, alcohol.....	2 years	10 1/2	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Chronic, alcohol.....	20 years	7 1/2	R	.....	.....	No	Yes	.....	P	.....	.....	I	.....
Chronic, alcohol.....	1 month	3	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Hallucinoses, alcohol.....	?	17 1/2	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Paranoia, alcohol.....	8 months	12	.....	I	.....	No	Yes	.....	.....	D	.....	.....	U
Morphinism.....	5 years	6	R	.....	.....	No	Yes	.....	.....	D	.....	I	.....
Morphinism.....	24 years	13 1/2	.....	I	.....	Yes	Dead	.....	P	.....	N	I	.....
Morphinism.....	6 years	16 1/4	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Morphinism.....	18 years	16 1/2	.....	I	.....	Yes	No	.....	P	.....	N	I	.....
Morphinism.....	1 month	15 3/4	.....	I	.....	Yes	No	.....	.....	.....	N	I	.....
Morphinism.....	10 years	1	.....	I	.....	Yes	No	.....	P	.....	N	I	.....
Morphinism.....	1 year	3	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Morphinism.....	1 month	5	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Total.....			6	13	1	+16-4	+4-16	10	7	2	13	5	1
Manic, depressive.....	4 years	15 1/2	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	2 weeks	5	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	3 months	4	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	2 months	6	.....	.....	.....	Yes	No	.....	P	.....	N	I	.....
Manic, depressive.....	4 months	4	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Manic, depressive.....	20 years	13	.....	I	.....	No	Yes	.....	(P)	.....	.....	I	.....
Manic, depressive.....	8 months	19 1/4	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Manic, depressive.....	1 week	12	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	6 months	1	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	2 months	10	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Manic, depressive.....	4 days	7 3/4	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	3 months	7 1/2	.....	I	.....	Yes	No	.....	P	.....	N	I	.....
Manic, depressive.....	1 week	15 1/2	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	1 week	3	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Manic, depressive.....	2 years	3	.....	.....	.....	Yes	Dead	.....	.....	D	N	.....	.....
Manic, mixed.....	4 years	4	R	.....	.....	Yes	No	.....	(P)	.....	N	I	.....
Total.....			5	11	.....	+15-1	+1-15	8	7	1	14	2	.....
Mental defective.....	Life	3	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Mental defective.....	?	4	.....	I	.....	Yes	Yes	W	.....	.....	N	I	.....
Mental defective.....	5 years	4	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Mental defective.....	5 years	16	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Mental defective.....	2 months	9 1/4	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Mental defective.....	4 years	6	.....	I	.....	Yes	Yes	.....	(P)	.....	N	I	.....
Mental defective.....	6 months	10 1/2	.....	I	.....	Yes	Yes	W	.....	.....	N	I	.....
Mental defective.....	1 week	16	.....	I	.....	Yes	No	.....	P	.....	N	I	.....
Mental defective.....	?	3	.....	I	.....	Yes	No	.....	(P)	.....	.....	I	.....
Total.....				9	.....	+9	+3-6	5	4	.....	6	3	.....
ORGANIC BRAIN DISEASE.													
Senile.....	2 years	2	.....	I	.....	Yes	Yes	.....	.....	D	.....	I	.....
Arterio-sclerosis.....	10 years	3	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Arterio-sclerosis.....	5 months	13 1/2	.....	I	.....	Yes	Yes	.....	.....	D	.....	I	.....
General paralysis.....	2 1/2 years	14 3/4	.....	.....	U	No	Dead	.....	.....	D	.....	.....	U
Undifferentiated.....	2 weeks	11 1/4	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Total.....				4	1	+4-1	+2-3	1	1	3	2	2	1
Unclassified.....	9 months	3	.....	I	.....	Yes	Yes	W	.....	.....	N	I	.....
Unclassified.....	13 years	3	.....	I	.....	Yes	No	.....	.....	D	.....	I	.....
Unclassified.....	4 years	4	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Unclassified.....	1 month	4	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Unclassified.....	2 months	3	R	.....	.....	Yes	No	W	.....	.....	N	I	.....
Unclassified.....	1 week	14	.....	I	.....	Yes	No	W	.....	.....	N	I	.....
Unclassified.....	8 years	10 1/2	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Unclassified.....	2 years	1 1/4	.....	I	.....	Yes	No	.....	P	.....	.....	I	.....
Unclassified.....	8 years	11	.....	I	.....	Yes	No	.....	(P)	.....	N	I	.....
Unclassified.....	?	5 3/4	.....	I	.....	Yes	Yes	W	.....	.....	N	I	.....

Unclassified	2 months	8	I	Yes	No	W		N				
Unclassified	1 month	13	I	Yes	No	W		NN				
Unclassified	4 weeks	14¾	I	Yes	No		(P)	NN				
Unclassified	1 year	17½	I	Yes	No	W		N				
Unclassified	9 months	10½	I	Yes	Dead		P					
Unclassified	4 years	12	I	No	Yes			D		U		
Unclassified	3 months	12¼	I	Yes	No		P	NN				
Unclassified	1 month	5	I	Yes	No	W		NN				
Unclassified	?	14¼	I	Yes	No	W		NN				
Total			2	17	+18-1	+3-16	10	7	2	14	3	1
ANXIETY GROUP.												
Pre-senile	3 months	4	I	Yes	No		(P)			I		
Invol. melanchol.	7 months	6¾	I	Yes	Yes		(P)			I		
Total			2		+2	+1-1	2			2		
PSYCHOGENIC.												
Psychesthesia	3 years	16¼	I	No	No							
Neurasthenia	?	8	U	No	Dead	?				?		
Hysteria	2 weeks	10½	I	Yes	No		(P)	N				
Allied to hysteria	3 years	3	I	Yes	No		(P)	N				
Total			3	1	+2-2	-4	2	2				
Locomotor ataxia	1 year	2¾	I	Yes	No	W				I		
Psychopathic personality	1 week	7	U	Yes	Yes	W					U	
Not insane	?	9	Not insane	Yes	No	W						
Not insane	?	10¾	I	Yes	No	W				I		
Epilepsy	1 year	6	U	Yes	Yes		P			I		
Epilepsy	20 years	2	U	Yes	Yes	W				1		
Total			2	3	+6	+3-3	5	1			4	1
Not reported												
1 78 7 +89 +19 47 40 10 58 32 5												
Grand total		14	78	7	-11	-81	47	40	10	58	32	5

recently discharged. There have been four hundred and thirty-four patients discharged from this institution within the last eighteen months. I have taken one hundred of this number, as a basis for my first report.

Form letters were mailed to one hundred and forty-six relatives. To date we have heard from nearly one hundred. Relatives were asked to fill in an enclosed letter in answering questions and to return it within thirty days. The following are the questions asked: "How has John Doc been getting along since he left the hospital?" "Do you notice anything in particular which suggests he is not well?" "Does he entertain any peculiar ideas?" "Does he do any work and is he self-supporting?" "Do you consider him recovered?"

The majority of the cases belong to the dementia praecox, intoxication and manic-depressive groups. Five of the one hundred cases are considered unimproved, thirty-two improved and fifty-eight recovered from the acute attack, as the result of hospital treatment. Eighty-nine are adapting themselves to their environment, nineteen show signs of subsequent attacks, forty-seven are wholly self-supporting, and forty are partially self-supporting.

The cases have been separated into groups, according to what type of reaction they presented while in the institution. The dementia praecox group contains sixteen cases, allied to dementia praecox three, intoxication group twenty, two acute and eight chronic alcoholics, one alcoholic hallucinosis, one alcoholic paranoia, and nine cases of morphinism. The manic-depressive group contains sixteen cases, the mental defective nine. The organic brain disease group contains one senile dement, two arterio-sclerotics, one paresis and one undifferentiated. There are nineteen unclassified cases. One each of pre-senility, involutional melancholia, psychasthenia, neurasthenia, hysteria, allied to hysteria, tabes, and psychopathic personality. There are two epileptics and two not insane. All of these were residents of the hospital less than one year and have been absent for periods varying from one to nineteen and a quarter months. The duration of the psychosis varied from three days to twenty years.

Seventy-eight cases were discharged as improved, fourteen as recovered, and seven as unimproved. Since leaving the hospital eighty-nine have been adjusting themselves. Only eleven have not been able to adapt themselves to the old environment. About one-fifth or nineteen per cent show signs of subsequent attacks.

It is unjust to women who have families to care for, and whose only means of livelihood is in the home, to be called partially self-supporting. I have therefore designated them as partially self-supporting, but with a bracket enclosing the term. Forty-seven per cent make their own living. To this should be added the nineteen per cent of housewives who are partially self-supporting; twenty-one per cent depend on others for partial support, while only ten per cent are wholly dependent.

From the study of the cases thus far, one can readily see that the majority of the patients seem

to have been benefited by hospital treatment. Now let us consider this report from a different viewpoint. Let us compare the condition of patients on discharge, with the relative's opinion of the case. Fifty-eight per cent, relatives consider normal, thirty-two per cent are improved, and only five per cent are still unimproved, as against fourteen per cent recovered, seventy-eight per cent improved and seven per cent unimproved, as shown by the hospital records.

Of the sixteen cases of dementia praecox discharged, the relatives consider six as "normal" and ten improved. The hospital discharged one as recovered and fifteen as improved. This means one of two things. Either the relatives are less observing and have become accustomed to the patient's abnormal reactions or that improvement has continued after leaving the institution.

In the allied to dementia praecox group, one patient discharged as unimproved is considered normal by relatives. One case was discharged as improved, but is still considered unimproved by relatives. In the intoxication group we find but one, an alcoholic paranoic, who, though he was discharged as improved, has followed the path of least resistance and is now wholly dependent and unimproved.

A morphine habitue of twenty-four years' standing was improved, got along nicely on the outside, did not go back to his old habit, was partially self-supporting, and was considered recovered. But one manic shows signs of subsequent attack, but according to the history the psychosis was of twenty years' duration. She is not adapting herself, though she is considered improved. It is doubtful whether this was really a case of manic-depressive insanity.

The mental defectives were all discharged as improved. Six are now considered recovered from the attack. In spite of the fact that one case still shows signs of a subsequent attack, he is considered normal. Another adapts himself well, shows signs of future disturbance, is wholly self-supporting, yet is considered as normal.

Under the organic brain disease group we notice a case of arterio-sclerosis of ten years' duration. He adapts himself well, shows no signs of subsequent attacks, is wholly self-supporting, and is considered normal.

Two cases left unclassified were discharged as recovered, seventeen as improved. All but one are adapting themselves, but three show signs

of subsequent attacks. Ten are wholly, seven only partially self-supporting, two are wholly dependent. Fourteen are considered recovered, three are improved and one unimproved.

The anxiety group contains two cases, both are considered improved. They are both housewives, are partially self-supporting, both are adapting themselves well. The case of involutional melancholia, however, shows signs of subsequent attack. Neither the case of psychasthenia, nor the neurasthenic have adapted themselves well. The case of hysteria and one allied to this condition were discharged as improved, and have since recovered. They are adapting themselves, show no signs of subsequent attack, and are partially self-supporting.

A case of tabes is wholly supporting, has markedly improved, has continued his treatment since leaving the hospital and has had good results. The psychopath is still unimproved. He is wholly self-supporting and still shows signs of subsequent attack. One case diagnosed as not insane was discharged as improved. This patient was a voluntary case who was admitted under the influence of alcohol; he remained only a few days, but his general condition on leaving was much improved. Both epileptics were discharged as unimproved. One is wholly, the other partially supporting. Both are adapting themselves and show signs of a subsequent attack.

The larger number of cases are either improved or again normal. You no doubt are raising the question, "Are all patients who appear normal to relatives really recovered?" To this question we reply emphatically, "No." Because we realize that relatives are not impartial in judging their friends, we have devised a scheme whereby we may better judge the mental condition of our parole patients. After three months' parole has expired relatives to whom a patient has been paroled, are required to return him to the hospital before being discharged. We discuss with both patient and relatives his former disturbed mental poise, what he has been doing since on parole, and his plans for the future. Having shown that he is to all appearances improved or recovered, he is then discharged as such. If he shows signs of a recurrent attack, he is kept for observation a week or more. The adoption of this plan will, we believe, eliminate much of the embarrassment brought on the in-

stitution due to our discharged patients violating society's conventions.

A report on a small number of cases is obviously not as conclusive as would a large series be, but the author believes that enough facts have been brought out to prove that such a report on all cases would be of much value.

A CASE OF ALCOHOLIC POLYNEURITIS WITH UNUSUAL TROPHIC DISTURBANCES.

G. B. HASSIN, M. D.,

Attending Neurologist, Cook County Hospital.

CHICAGO

Trophic disorders are not a common occurrence in polyneuritis. While they may appear in the form of blisters, glossy skin, herpes like eruptions, etc., yet they do not dominate the clinical picture of this disease, like the motor, sensory or even psychical symptoms. In the present case, the trophic, motor, sensory and psychical disturbances were not only equally represented, but the former, i. e., the trophic symptoms, actually predominated, were the early manifestations of the polyneuritis and attained an unusual degree of severity. In fact, they so obscured the clinical picture that the disease evidently remained unrecognized for eleven years.

History: Man 40 years old, cattle butcher by occupation, entered my service at the Cook County Hospital, September 8, 1916, complaining of weakness and soreness in the feet. He denies syphilis, malaria, any other infectious or contagious disease, but admits having been drinking large quantities of beer and whiskey. He could give an excellent account of his early boyhood life, could give the name of his teacher, the street number of the house where he lived 30 years ago, but was very uncertain in regard to more recent events of his life. Thus he could not remember the dates of various accidents that occurred in his life and confessed that his memory became rather "strange." He remembers well that he was in excellent health up to the age of ten, when he sustained an injury to the right thigh which resulted in a bony growth. This was removed about eight years later. Eighteen years ago he sustained another injury and lost two fingers of his left hand. About thirteen years ago he met with a third accident in a stock

yards fire. He claims a viaduct fell over him, injuring his back, ribs, right ankle joint and toes. He was taken to a hospital, where he stayed for five weeks, then rested at home for about the same length of time, feeling perfectly well. He was not paralyzed, had no bladder or rectal disorders, no gait troubles, but the large toes, especially the left one, became "sore" about four months after the fire and began to ulcerate. The ulcers healed, opened up again, and finally after eight years of suffering and treatment he had the left toe removed. Soon after the operation—the exact date he does not remember—the rest of the left toes became ulcerated, and the right big toe became so bad that it had to be amputated about five months ago. The amputation was followed, he says, by ulcer formations on the rest of the right toes and of the soles of the feet. The toes became large, red, club shaped, assuming the aspect of that of the big toes, before they were amputated. About seven months ago he met with a fourth accident, in a street car, and this time the head was injured.

Examination: A strongly built man, with numerous signs of previously sustained injuries and operations. There are two skin scars on the forehead, a deep hole on the anterior surface of the right thigh from an operation twenty-three years ago, amputated thumb and index finger on the left hand, amputated large toes of both feet and a kypho-scoliosis. The remaining toes are greatly disfigured, club shaped, cyanotic or rather livid in color. The second toes, on both sides, are greatly increased in size, club shaped and ulcerated on the plantar surface. The remaining toes are less mutilated, are slightly cyanotic, the fourth toe on the right also showing an ulcer on the plantar surface (Fig. 1). The ulcers have the size of a dime and are somewhat drying. The toes are not only disfigured, discolored, but are paralyzed. The feet are drooping (Fig. 2) but normal in color, the ends of the first metatarsals being greatly thickened and increased in size. The left foot is slightly adducted, the extension, the out-inward movements being greatly impaired. The right ankle joint is devoid of any active or passive motility, as the joint is stiff, ankylosed. The legs are normal in color, the right calf muscles are wasted and sensitive to pressure like the left calf muscles and the large nerve trunks on both sides. The muscle power in the legs and thighs is retained on both sides,



Fig. 1. Mutilation and ulcerations of the toes.

but very much reduced in the extensors of the feet and toes.

The sensibility is markedly impaired on the dorsal and plantar surfaces of the toes and feet and somewhat on the external surface of both legs. The sensibility is lost for pain, temperature, touch. The pressure and muscle senses are merely diminished. The anesthesia principally involves the areas of the peroneus superficialis and profundus, does not end abruptly, but gradually enters the zone of hyperesthesia (Fig. 3).

The reflexes: the tendo Achillis reflex was lost on both sides, the knee jerks were present—on the right with reinforcement—the triceps reflexes were lively, the cremasteric present on the right, and very weak on the left, the abdominal was present above the umbilicus, absent below.

The gait was quite characteristic: the patient flexes too much the hips and the knee joints, while the feet are dangling—the so-called step-page gait.

The bladder, rectum, sexual power, internal organs, the cerebral nerves, the urine, serological tests, the sensibility above the legs were all normal.

The electrical examination of the peroneal, post. tibial nerves, extensors of the feet and toes did not reveal any reaction of degeneration, but showed mere quantitative changes.

The findings thus pertain exclusively to the abnormal condition of the feet, toes, right leg (atrophy of the calf muscles) and spine (kyphosis). The toes show a combination of trophic, vascular, sensory and motor disturbances, while the feet—sensory and motor defects, which were also present, though slightly, on the legs. Both motor and sensory disturbances could be very

well explained by the bilateral involvement of the peroneal nerves, i. e., by a pure peripheral lesion in the form of a multiple neuritis. However, the presence of pronounced trophic disturbances of long standing suggested also the possibility of a posterior root involvement, i. e., of tabes or a possible lesion of the spinal cord itself, of that portion of the latter where the peroneal nerves originate and where the sensory nerves pass that supply the feet and toes with sensation. This portion of the spinal cord comprises the two lowest lumbar and the two upper sacral segments, these four segments forming what Minor of Moscow, Russia, described as epiconus.

Of these three lesions—peripheral neuritis, tabes and epiconus lesion—tabes could be easily excluded. Tabes of the lumbosacral region generally gives very marked posterior root symptoms, as violent shooting pains, ataxia, severe genito-urinary disturbances, etc., which symptoms in this patient were absent. Besides, the negative serological findings in the blood and cerebrospinal fluid also speak against tabes. The pronounced trophic disorders of many years standing suggested, at first glance, the possibility of

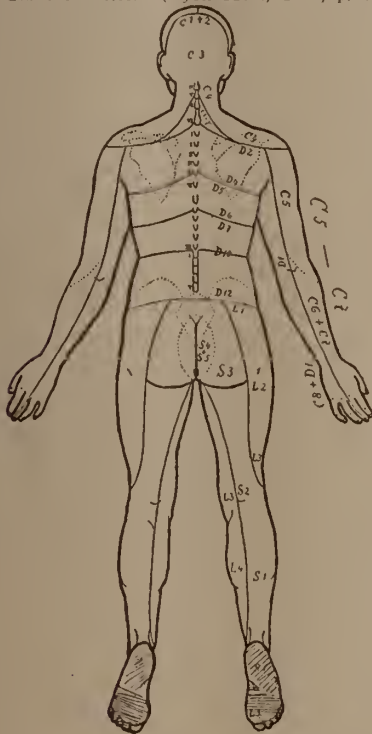


Fig. 2. "Foot drop" and mutilated toes.

a central, i. e., a spinal cord lesion in the form of syringomyelia or spinal gliosis. In favor of this diagnosis spoke the numerous injuries and the kyphosis in the region of the first lumbar vertebra.

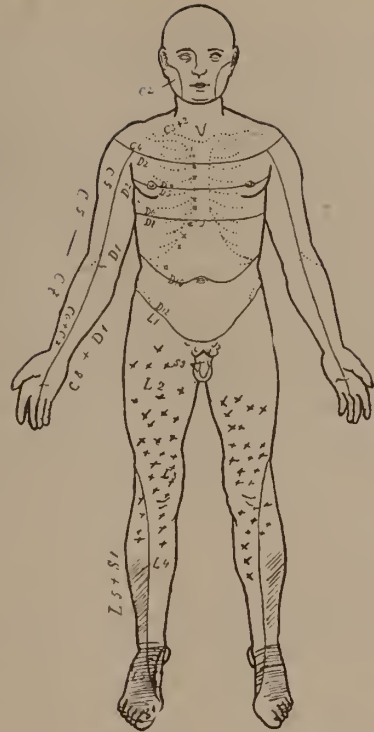
Syringomyelia or spinal gliosis involving the epiconus would very well explain the motor, sensory and trophic disturbances, because an epiconus lesion practically gives the same symptoms as presented by my patient: bilateral foot drop, steppage gait, loss of tendo Achillis jerks, sensibility disturbances, in the presence of normal knee jerks and of a normal function of the genito-urinary organs. Yet the character of anesthesia, the tenderness of the calf muscles and of the large nerve trunks, the amnesia and the alcoholic history spoke rather in favor of a multiple neuritis. The only difficulty was to explain the mutilations of the toes, their ulcerations, etc., which, as I mentioned above, are very uncommon and in fact exceptionally rare in polyneuritis. There was a report but of one case similar to mine that I could find, that of Lépine and Porot.¹ In their case a polyneuritis (alcoholic) was complicated by gangrene of the right index and of both middle fingers. There was severe paroxys-

1. Lépine et Porot: Névrite alcoolique avec gangrène symétrique des extrémités. (Lyon Méd., 1905, p. 746.)



REMARKS

Fig. 3. Sensibility disturbances on the lower extremities



REMARKS

==== anesthesia
 |||| hyperesthesia
 +++ hyperalgesia

mal pain in the affected fingers, but no sensory disturbances, no change in the reflexes, no muscular atrophy, etc.

The disease started with severe pain two years previously, followed by a felon formation on the right middle finger. There was no history of trauma, no infection. A year later the left middle finger became involved, also followed by excruciating pains, and finally sloughed off.

In another patient a typical erythromelalgia was the complication of a neuritis. The patient died and the post mortem examination showed changes in the peripheral nerves.

Equally significant are the earlier observations of Pitres and Vaillard.² They carefully studied the possible histopathological changes in various nerves of the lower and upper extremities in cases of perforating ulcers of toes and feet. They found evidence of neuritis not only in the immediate vicinity of the ulcers, but in regions far removed. Thus, in case the toes were involved,

2. Pitres, A., and Vaillard, L.: Altérations des nerfs périphériques dans deux cas de maux perforants plantaires et dans quelques autres formes de lésions trophiques des pieds. (Arch. de phys. normale et pathol., 1885, p. 205.)

the post. tibial, the external and internal popliteals, the ant. peroneal nerve, including the sciatic nerve, were found degenerated. The difference between the condition of the nerves near the ulcers and those situated higher up was in the amount of regenerated fibres. This was larger the farther the nerve was removed from the ulcer. In a case of marked trophic disturbances in the hand (ichthyosis) the ulnar and median nerves showed signs of neuritis. The latter is looked upon by them as the possible cause of various trophic skin lesions, including gangrene.³ It cannot, therefore, be doubted that the various trophic disturbances as observed in my patient were due to the multiple neuritis as a predisposing, and to the severe traumata as an exciting cause.

3040 Jackson Blvd.

3. Pitres, A., and Vaillard, L.: Contributions à l'étude des granuléennes massives des membres d'origine névritique. (Arch. de phys. normale & path., 1885, p. 107.)

THE ACCESSORY SINUSES OF THE NOSE.*

WILFRED H. GARDNER, M. D.
BLOOMINGTON, ILLINOIS.

Doubtless, one of the least understood phases in the field of medicine, is a comprehensive understanding of the accessory sinuses by the general practitioner. There probably isn't any one field in medicine that is overlooked and neglected as the pathological conditions of the sinuses.

The nasal accessory sinuses in man are the residual olfactory organs. Owing to the small opening between these sinuses and the nose, inflammation of the mucous membrane of these cavities becomes a frequent pathological condition.

If the sinuses were more open to ventilation and drainage, inflammatory processes would occur less frequently. It follows, therefore, that when inflammation of the sinuses is present, the first principal treatment is to establish ventilation and drainage. This may mean that the swollen and inflamed mucous membrane around the sinus opening should be depleted by the application of adrenalin, cocaine, or antipyrine, or it may mean that some surgical procedure should be instituted for relief. Whichever is necessary, ventilation and drainage is the prime object.

The removal of the morbid material is secondary.

The etiology of the inflammatory diseases of the nasal accessory sinuses, like that of other mucous lined cavities, is largely embraced in those conditions which interfere with the ventilation and drainage of the cavity. When there is good ventilation and drainage, inflammation is rare, except in those cases subjected to a very virulent infection, or in which the resistance is lowered by some dyscrasia, such as syphilis or tuberculosis.

When there is a granulomatous infiltration in the outer wall of the nose, the ulcerative process may invade the sinuses and give rise to symptoms of pain, tenderness, suppuration, headache and dizziness.

Diseases of the contiguous anatomical structure as the teeth, hard palate and outer wall of the nose may give rise to inflammation of the mucous membrane of the sinuses. Also caries of the root of the tooth, located beneath the floor of the maxillary sinus, may cause emphysema of the antrum by infection through the carious fistula thus formed, or by the way of the vessels and lymphatics. It has been estimated that nearly one-half of all the empyemas of the antrum have their origin in diseased teeth, while the remainder are due chiefly to intranasal diseases and anatomical deformities of the nose.

Nasal dressings may cause a damming up of the secretions which undergo decomposition and infection and thus give rise to inflammation of the sinuses. Too much emphasis cannot be laid upon the untoward tamponing as it is a fruitful source of inflammatory diseases of the nasal and mucous membranes. Personally, I have abandoned intranasal dressings except in those cases where there is severe hemorrhage, or in which a dressing must be introduced to hold the septum in position after certain operations for the correction of deviations, and even then I do not leave them in one hour longer than is absolutely necessary to accomplish their purpose.

Venous stasis from intranasal pressure may cause sinusitis. The pressure may be due to some anatomical or pathological departure from the normal, as a deviation of the septum pressing against the outer wall of the nose, or a gummatous swelling of the septum.

The exciting causes of sinusitis are the various

*Read at meeting of McLean County Medical Society, Nov. 14, 1916.

microorganisms. It is well known that coryza is often one of the early phenomena in this class of cases, and that it is due to microorganisms and their toxins. The inflammation usually extends to the sinuses, where it may remain in a latent or chronic form. In some cases it is only after many years that the involvement of the sinuses becomes obvious enough to attract the attention of the patient or the physician.

The inflammation thus started is more apt to become chronic in those cases in which the cell openings are more or less blocked by anatomical deviations of the septum or other obstructive lesions of the nose.

Many authors of late have emphasized the causative relation of influenza to inflammation of the sinuses. In fact, they claim it is the most frequent cause of infection.

Symptoms: The intranasal are those changes in the appearance of the skin of the face and of the fundus of the eye as seen upon ophthalmoscopic examination. In addition to the objective signs, the results of transillumination and skiagraphing afford important information.

The intranasal objective signs are the changes in the appearance of the walls of the nasal chambers and the location of the secretion as it drains from the affected cells.

When any of the sinuses, contiguous to the skin of the face, are involved there may be redness, swelling and tenderness over the affected area.

Transillumination of the face affords objective information as to the maxillary sinus and sometimes of the frontal sinus, but none in reference to the other sinuses. In transillumination of the antrum, these points should be noted, namely, the red pupillary reflex, the crescent of light corresponding to the position of the lower lid and the sense of light in the eye when closed.

Transillumination of the frontal sinuses is an uncertain means of diagnosis, as the anterior wall often varies so much in thickness in the same individual. Taken as a whole, transillumination of the frontal sinuses is not a reliable procedure.

Skiagraphing of the accessory sinuses of the nose should be a routine practice, when access is had to a competent radiographer. A great difficulty is to find a radiographer who understands the technique well enough to produce clear plates.

The advantage received from skiagraphing of the sinus in diagnosis are: If a sinus is healthy its outline on the plate is clear and dark. If the sinus is diseased its outline is clear and distinct and its area is cloudy or hazy upon the plate. Prints from the plate are rarely satisfactory.

The dimensions of the frontal sinuses, are clearly defined, thus affording the surgeon positive information as to the extent of exposure necessary before he begins an external operation.

A skiagraph through the lateral dimensions of the head, shows the depth of the frontal sinus, thus affording the surgeon additional data as to the deformity to be expected, should the Killian operation be performed. The wider and deeper the sinus, the greater the deformity following the complete removal of the anterior wall of the sinus. The information gained from the skiagraph as to the size of the sinus, will govern the operator as to what operation he will perform.

The Intranasal Objective Symptoms: The texture of the mucous membrane of the nose, especially that portion of it covering the middle turbinated body, is sometimes indicative of sinus disease. When the mucosa of the anterior end of the middle turbinate is boggy and velvety in texture, it usually signifies the existence of an inflammation of the ethmoidal cells. Polypi are often associated with diseases of the sinuses and usually secondary to the inflammation.

Pus within the nasal chambers, is usually significant of empyema of the sinuses. As the nasal mucosa is rarely the focal center of suppurative inflammation, the presence of pus in the nasal chambers should therefore excite suspicion of the existence of an inflammation of the sinuses, and especially after being wiped out, the pus soon accumulates.

The Subjective Symptoms: Pain, referable to the sinus involved, may or may not be present. In active inflammation of the antral or frontal sinus, pain is often referred to the region involved. In the deeper sinuses, as the ethmoidal and sphenoidal, the pain is vaguely deep-seated in the head or may be referred to the periphery of the head without reference to the location of the sinus.

Headache: Headache is one of the most common and significant sign of sinusitis, though it may be due to the middle turbinal pressing against the septum. This condition is often

taken for eye strain. Refraction is rarely satisfactory and when the anterior end of the middle turbinate is removed, is the headache relieved and glasses accepted. In many cases glasses are not necessary. Headaches have multitudinous causes and is not therefore pathognomonic. Headaches may signify eye strain, but in this case it is usually bilateral, whereas in sinus disease it is more often unilateral, and if not unilateral, it is more pronounced on one side than the other. The headache which begins in a sinus is usually made worse by stooping forward and upon sudden jar of the body. It may persist upon closing the eyes upon retiring or in a darkened room, whereas if it is of ocular origin it disappears under such conditions.

The headache of ocular origin is generally increased upon prolonged reading and attendance at the theatre. This type of pain is not characteristic of sinus disease.

The pains and headache due to disease of the frontal sinus, may assume the form of sharp, shooting pains through the eyes or they may be dull and heavy or may consist of a dull feeling in the forehead which is aggravated by leaning forward.

Tenderness and pain upon pressure may be present in diseases of the sinuses contiguous to the surface of the skin, namely, the frontal, anterior ethmoidal and maxillary. Giddiness and vertigo, or a momentary sense of blurred or darkened vision, or a sense of fainting are frequently present in diseases of the sinuses. All these symptoms may be aggravated or produced by stooping forward. A patient should be carefully questioned in regard to the symptoms, as otherwise they may be overlooked.

The olfactory sense may be perverted. The patient apparently perceiving odors that do not exist, or loss of olfaction. This is caused by blocking the olfactory fissure by swollen tissues in the region of the middle turbinate. The ventilation of the superior meatus of the nose is thereby prevented, hence the loss of the sense of smell.

The ocular function may be disturbed or altogether lost in the course of sinus disease. The morbid process in the eye may take the form of a papillitis, retinitis, retrobulbar disease and errors of refraction or accommodation.

The intimate relation between the veins of the nose and accessory sinuses of the eye, makes an extension of the disease of the sinuses to the ocular apparatus by the veins and lymphatics, very easy. Paralysis of the extra-ocular muscles is often due to inflammation of the sinuses, because the nerves which supply these muscles are in close anatomical relation to the sinus walls.

The principles of treatment depends upon three things: the establishing of free drainage and ventilation, the removal of the morbid material and elevation of the opsonic index. The appreciation of these fundamental principles enables the surgeon to decide upon the method of treatment in each case.

Acute catarrhal sinusitis is usually an extension of a similar inflammation of the nasal mucosa in the course of a coryza or cold in the head. The mucous membrane of the nose and sinuses is hyperemic and swollen. The ostia may be closed from swelling of the mucous membrane. The obvious indication is to relieve the swelling by application of certain drugs such as cocaine, adrenalin and antipyrine.

In some cases it is necessary to probe the sinuses and in some cases it will be necessary to straighten the septum or remove a portion of the middle turbinate.

Chronic suppurative sinusitis with obstructive lesions, necessitates their removal, whether they be of septal, turbinal or other origin. In this case there is simple obstruction and no morbid material except pus is present, hence the removal of the obstructive lesion permits of drainage, which removes the pus. The foregoing statement does not invariably hold good, because in most of the cells the opening is near the upper limit. The ciliated columnar epithelium which lines the cells, carries the secretions up to the cell openings, where it is discharged into the nasal cavity. If, therefore, the cilia are destroyed by the inflammatory process the removal of the obstructive lesions does not necessarily establish free drainage. In such cases it may be necessary to institute operative measures, in order to open the cells at the more dependent portion, or in case of the ethmoid to exenterate them in their entirety. Chronic suppurative sinusitis with granulation, polypi or necrosis is amenable only to surgical treatment.

Griesheim Building.

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1915-16

PRESIDENT.....WILLIAM L. NOBLE, Chicago
 PRESIDENT-ELECT.....E. B. COOLLEY, Danville
 FIRST VICE-PRESIDENT.....C. F. NEWCOMB, Champaign
 SECOND VICE-PRESIDENT.....R. A. MCCLELLAND, Yorkville
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARP, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksonville
 D. R. MACMARTIN.....Chicago
 C. B. KING, *Chairman*.....3938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, *Secretary*.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

JANUARY, 1917

Editorials

HEALTH INSURANCE BILL.

In the December number the ILLINOIS MEDICAL JOURNAL published the medical provisions of the so-called model Health Insurance bill, as it was at that time. A large number of our readers apparently overlooked it, although it was signed by the members of the Committee on Social Insurance of the Chicago Medical Society. The committee is receiving numerous calls from members for copies of the bill. For this reason and at the request of the chairman of the committee, we are again publishing the medical provisions of the tentative bill as it is at this date. We have not the full text of the bill, nor could we give it space, but the following sections are those which contain the medical provisions and which are of interest and importance to the profession. (See page 58.)

The tentative bill was developed in conference with physicians and submitted for criticism and

discussion. Copies of this tentative bill can be obtained from the Committee on Social Insurance of the American Association for Labor Legislation, 131 East 23rd St., New York City.

BIRTH CONTROL.

Newspaper report has it that the Vice Censor of New York City has the New York Medical Society on record as to whether to brand birth control a vice or a virtue. The question was presented to the above Society at a recent meeting. The vote stood 72 for and 210 against birth control. Only two of the nine physician committeemen, who have been investigating the question for the last six months, reported favorably for a state law permitting doctors to advise married patients on birth control methods.

GIVING "COMMISSIONS" TO PHYSICIANS FOR PRESCRIPTIONS.

Some day an important question is going to be solved for pharmacy. How soon it will be solved depends entirely upon the temper of the pharmacist. There may be other, even more important, questions for pharmacists to solve; but for the purpose of this article, the dispensing doctor and the druggist who pays "commissions" on prescriptions constitute the important question. What are druggists going to do about it? The columns of the *Journal* are open for discussion.

The matter may be summed up in the following, which is practically a consensus of those druggists who are most largely affected by these evils, and is a sample of what arrives at the *Journal* office almost daily:

* * *

My own personal work in demonstrating the official preparations, with which I have had such pronounced good results in the past, has dwindled to almost naught, and only so because of the physicians' "buying" the druggists; for nearly every physician here *demands* a percentage or other favor if he "sends" any work. This proves positively to me that physicians are more interested in the money end of their game than in curative results, and the old chestnut about the "doctor's humanitarianism and philanthropy" is simply a cloak, a wolf in sheep's clothing.

I have the names of over fifty physicians on my books, every account is balanced, and *not one* is sending me any prescriptions now except for *themselves and their families*, and a few special formulas that they cannot get elsewhere. When they had to pay their accounts, like other white men, they used their influence and sent their prescriptions elsewhere. I do not believe there is a physician in our city who does not give me the credit of being a competent and careful pharmacist, and one who sends out the

best work in the city, but there is *not one* sending me any prescriptions, except as above noted, simply because I do not rebate them at all.

My business is good, better than ever before, and I have been here some time, but am not giving physicians any credit for it. Our medical men here, I note, are even discontinuing to specify "U. S. P." and "N. F.," but use proprietaries and oftentimes such as Stuart's dyspepsia tablets, Pinkham's compound, and castoria.

As the journal has often said, and repeats now: All the evils in pharmacy, irrespective of their kind, are costing pharmacy dear. It makes little difference whether individual pharmacists obtain a temporary gain, or whether various members of the medical profession profit thereby; the public is the loser from *any* and *all* evils that beset pharmacy, and when the public is the loser, pharmacy goes down hill. So great have the effects of these evils become that it is safe to say that already over thirty million persons have tabooed drugs entirely, and the ranks of the drugless cults are being swelled at a prodigious rate yearly. One may hide behind the cloak of competition all he pleases and in whatever form a druggist's fancy may dictate, the effect is always the same. There is *only one* remedy and that is for all pharmacists and all physicians to work together for the common good. To apply this remedy to bring about a cure, is *the question*, and it *must* be found, and very soon at that, or there will be no practice of pharmacy in the years to come.

The above from the N. A. R. D. Journal of December 21 needs little comment. Just why the editor of that journal would publish such a letter, and without signature at that, is beyond our comprehension. No one, not excepting the retail druggists, will believe a word of it.

The N. A. R. D. Journal is the official organ of the National Association of Retail Druggists, and one would naturally suppose it to be devoted to the interest of the retail druggists. This same journal has previously found fault with the doctor for dispensing, but we think just a little slander of this sort will do much to drive the doctor away from drug stores. If, when a doctor writes a prescription, he is going to be blackmailed with such charges by the druggists' official organ, the sooner he ceases writing prescriptions, the better.

NOTE: DEFINITIONS OF TERMS USED IN THE BILL.
COMMISSION—Means the Social Insurance Commission.

FUND—Means a Local or Trade Fund as the case may be.

SOCIETY—Means an Approved Society.

CARRIER—Means the Society or Fund which carries the Insurance.

DISABILITY—Means inability to pursue the usual gainful occupation.

MEDICAL PROVISIONS OF THE TENTATIVE DRAFT OF AN ACT FOR HEALTH INSURANCE.

Note: Definition of terms first column on this page.

PERSONS INSURED.

The principle of compulsion has been adopted because authorities are pretty generally agreed that this is the only method to reach the poorest paid and the most improvident workers, who obviously most need the benefits offered by an insurance scheme. Thus in Great Britain, where voluntary sickness insurance had an exceptional development, only the better paid workers were insured, and it was found necessary in 1911 to enact a compulsory measure to give the whole population the necessary protection.

Employed persons only are included, except that medical attendance is to be given to the families. The wage-earner is usually the bread-winner of a family; his illness is normally an economic as well as a physical misfortune; his needs are therefore different from those of the classes not so directly dependent on health for their livelihood, or those of the non-wage-earning members of a family.

Section 3. *Compulsory Insurance.* Every employed person engaged in manual labor in the state and all other employed persons earning \$100 a month or less, unless exempted under Section 4 of this act, shall be insured in a fund or society as provided in this act, except employes of the United States and except employes of the state or municipalities for whom provision in time of sickness is already made through legally authorized means which in the opinion of the commission are satisfactory.

Section 6. *Cases in Which Benefits Paid.* Benefits as provided in this act shall be paid or furnished in cases of sickness or accident, or of death or disability resulting therefrom, except cases in which any liability for compensation or other benefits is imposed by the workmen's compensation law.

Section 7. *Minimum Benefits.* Every fund or society must provide for its insured members as minimum benefits:

Medical, surgical, dental, and nursing attendance and treatment;

Medicines and medical and surgical supplies;

Sickness benefits;

Maternity benefit;

Funeral benefit;

Medical, surgical, and nursing attendance and medicines and medical and surgical supplies for dependent members of their families.

Section 8. *Beginning of Right.* The right to benefits, with the exception of maternity benefit, begins with the day of membership. The maternity benefit shall be payable to any woman insured against sickness for at least nine months during the twelve months preceding the confinement, to the wife of any man so insured, and, as respects confinement for a child of her husband, to the widow of any man insured for

at least nine months during the twelve months preceding his death.

Section 9. *Medical, Surgical and Nursing Attendance.* All necessary medical, surgical, and nursing attendance and treatment shall be furnished by the society or fund from the first day of sickness or the happening of the accident, provided notice has been given, otherwise from the date of such notice. In case of disability, it shall not be furnished for more than twenty-six weeks of disability in any consecutive twelve months. In case the society or fund is unable to furnish the whole or any part of the benefit provided for in this section, it must pay the cost of such service actually rendered by competent persons at a rate approved by the commission.

Section 10. *Medical and Surgical Service.* The fund or society, subject to the approval of the commission, shall make arrangements for medical and surgical attendance and treatment by means of either:

1. A panel of physicians to which all legally qualified physicians and surgeons and incorporated institutions and associations of such physicians and surgeons shall have the right to belong, and from among whom the patients shall have free choice, subject to the right of the physician or surgeon to refuse patients on grounds specified in regulations made under this act; but no physician on the panel shall have on his list of insured patients more than 500 insured persons with the dependent members of their families, except that for every person with no dependents he may have one additional such person;

2. Legally qualified physicians on salary and in the employ of the fund or society, among which physicians are insured persons and dependent members of their families shall have reasonable free choice;

3. Legally qualified physicians on salary and in the employ of the fund or society engaged for the treatment of insured persons and dependent members of their families in prescribed areas;

4. Combination of above methods.

Section 10-a. *Nursing Service.* The fund or society, subject to the approval of the commission, shall make arrangements for nursing attendance and treatment with nurses or incorporated institutions or associations of nurses.

Section 10-b. *Laboratory Facilities and Specialists.* The fund or society shall provide proper laboratory and other facilities for diagnosis and treatment and shall make arrangements with specialists, including dentists, for consultations, treatments and operations.

Section 10-c. *Local Medical Committee.* There shall be in each district in which there is a panel, a local medical committee of not less than seven or more than fifteen members. The commissioner of health in each city in which there is a commissioner of health, or local health officer elsewhere, shall appoint a member of his staff, who shall be a physician, as a member of the local medical committee of each district within his jurisdiction. The other members shall be legally qualified physicians and surgeons and shall be elected

for terms of three years, part by the physicians on the panel of the funds in the district, part by the staffs of attending physicians and surgeons of the hospitals which have made agreements with a fund in the district to treat its insured members. The commission, subject to the approval of the medical advisory board, shall determine the proportion of members of the local medical committee to be elected by the panel physicians and by the attending physicians and surgeons of said hospitals. The committee shall elect its own officers and shall serve without compensation.

Section 10-d. *Meetings of the Committee.* The committee shall meet at least once every month and may be called together at any time on three days' notice by the chairman or by a call signed by five members. A majority of the members of the committee shall constitute a quorum.

Section 10-e. *Powers and Duties of the Committee.* All regulations affecting medical, surgical, or nursing attendance and treatment made by the board of directors of a fund or society shall be submitted to the local medical committee of its district, and shall not take effect until after the next regular meeting of the committee, unless sooner acted upon by the committee, except that the board may issue temporary regulations for the period of three months. Any dispute in regard to such attendance or treatment or any charge made against a physician because of his work for a fund or society shall be referred to the local medical committee of the district before action is taken by the board of directors. If the committee and the board of directors cannot agree, the matter shall be referred to the arbitration committee.

Section 11. *Medical Officers.* Each fund or society shall employ at least one medical officer, who shall be a legally qualified physician and possess such other qualifications as the state medical advisory board may prescribe. The appointment of a medical officer shall be subject to the approval of the local medical committee, but in case of failure or refusal to approve an appeal may be taken to the state medical advisory board, whose decision shall be final. No medical officer shall practice in any capacity under this act.

Section 11-a. *Certificate of Disability.* A certificate of disability shall be issued only by a medical officer, and only after his personal examination of the patient and upon the recommendation of the attending physician. Sickness benefits shall be paid only upon a certificate of disability. A medical officer may visit at any time persons recommended for or receiving sickness benefits.

Section 12. *Medical and Surgical Supplies.* Insured persons and the dependent members of their families shall be supplied with all necessary medicines, medical and surgical supplies, dressings, eye-glasses, trusses, crutches, and similar appliances, prescribed by the physician, surgeon, or dentist, the aggregate not to exceed \$50 in cost for any insured person and the dependent members of his family in any one year.

Section 13. *Hospital Treatment.* Hospital or sanatorium treatment and maintenance shall be furnished, upon the approval of the medical officer of the fund or society, instead of all other benefits (except as provided in Sections 16, 19 and 20), with the consent of the insured member, or that of his family when it is not practicable to obtain his consent. The fund or society may demand that such treatment and maintenance be accepted when required by the contagious nature of the disease, or when in the opinion of its medical officer such treatment is imperative for the proper treatment of the disease or for the proper control of the patient. Sickness benefit may be discontinued (except as provided in Section 19) during refusal to submit to hospital or sanatorium treatment. Such treatment shall be furnished during the period for which sickness benefit is payable, and shall be provided in a hospital or sanatorium with which the fund or society has made satisfactory financial arrangements approved by the commission, or in one erected and maintained by the funds and societies with the approval of the commission.

Section 14. *Arbitration Committee.* Any dispute between an insured person and a physician or between funds or societies and physicians shall be referred to an arbitration committee, composed of one member appointed by the local medical committee, one member appointed by the board of directors of the fund, and a third member, who shall be chairman, appointed by a judge of the county court or by a justice of the supreme court in counties in which there is no county court. The decision of the arbitration committee shall be final unless an appeal is taken to the commission within ten days from the date on which the decision is rendered.

Section 15. *Sickness Benefit to Insured.* A sickness benefit, equal to two-thirds (66⅔ per cent.) of the weekly earnings of the insured member, shall be paid beginning with the fourth day of disability on account of illness or accident. It shall be paid only during continuance of disability, and shall not be paid to the same person for a period of over twenty-six weeks in any consecutive twelve months, nor for more than twenty-six weeks on account of the same case of disability. This benefit shall be paid to an insured woman when disabled on account of pregnancy, except that it shall not be paid to her during the period when she is receiving cash maternity benefit. The weeks during which sickness benefit is discontinued because of refusal to accept hospital treatment shall be included in computing the period of twenty-six weeks.

Section 16. *Sickness Benefit to Dependents.* A sickness benefit equal to one-half (50 per cent.) of the earnings of the insured member shall be paid to his family, if any, or to other dependents, if any, while he is in the hospital or sanatorium or while he refuses to submit to such treatment.

Section 18. *Maternity Benefit.* Maternity benefit shall consist of:

All necessary medical, surgical and obstetrical aid, materials and appliances, which shall be given insured women and the wives of insured men;

A weekly maternity benefit, which shall be payable to insured women only, equal to the regular sickness benefit of the insured, for a period of eight weeks, of which at least six shall be subsequent to delivery, on condition that the beneficiary abstain from gainful employment during period of payment. Benefits under this section shall be in addition to all other benefits under this act.

Section 43. *State Social Insurance Commission.* A state social insurance commission is hereby created, consisting of three commissioners, to be appointed by the governor, one of whom shall be designated by the governor as chairman, and one of whom shall be a physician. The term of office of members of the commission shall be six years, except that the first members thereof shall be appointed for such terms that the term of one member shall expire on January first, nineteen hundred and nineteen; one on January first, nineteen hundred and twenty-one, and one on January first, nineteen hundred and twenty-three. Each commissioner shall devote his entire time to the duties of his office, and shall not hold any position of trust or profit, or engage in any occupation or business interfering or inconsistent with his duties as such commissioner, or serve on or under any committee of a political party. The commission shall have an official seal which shall be judicially noticed.

Section 56. *Medical Advisory Board.* There shall be a medical advisory board of eleven members. The state commissioner of health shall be ex-officio a member of the board, six members shall be chosen by the Medical Society of the state, two by the Homeopathic Medical Society of the state, and two by the Eclectic Medical Society of the state. The term of office of chosen members shall be three years, except that the members first chosen shall choose by lot three of their number to go out of office at the end of one year and three at the end of two years. The board shall elect its own chairman and other officers. Its members shall be paid necessary expenses, but no salaries.

Section 57. *Powers of Board.* All regulations of the commission relating to the medical benefit and to the relations of physicians or surgeons to the insurance shall be referred to the board and shall not be approved by the commission until after the first regular meeting of the board after such reference, unless sooner acted upon by the board, except in case of an emergency, when the commission may issue a temporary regulation for a period of not over six months.

Section 58. *Meetings of the Board.* The board shall meet at least once every three months and may be called together at any time on one week's notice by the chairman or by a call signed by any five members or by the commission. A majority of the members of the board shall constitute a quorum.

Section 59. *Medical Disputes.* All disputes regarding medical benefit, which have been appealed to the commission, shall be referred by the commission to the medical advisory board, which shall report to the commission and the commission shall not decide any such dispute until after a report has been made by the board.

MEDICAL PROVISIONS APPROVED.

Several prominent medical societies have approved the proposals for universal workmen's health insurance and will co-operate in putting them into legislative effect.

After concentrating attention upon the medical provisions, the Council of the Medical Society of the State of New York, "considering that these essentials safeguard the public interest, the public health, and the welfare of the medical profession," by resolution approved and endorsed them and instructed its committee on medical economics in conjunction with its committee on legislation to act accordingly."

These provisions are receiving the careful consideration of physicians throughout the country. Approval by many medical societies is expected in the near future, and the co-operation of each is desired.

HEALTH OF THE NAVY.

We have recently received the annual report of the Secretary of the Navy for the fiscal year. The report is interesting reading, and it is gratifying to read of the general improvement of things pertaining to the Navy.

The portion of the report which interested us most is, "Health and Sanitation." It is evident that the general health of our naval men is being better looked after. During the year, 4.48 per 1,000 of the naval personnel were lost by death. This looks pretty good, although it is to be remembered that our Navy did no fighting during the year. Of the total number of deaths in the Navy, 51, or one-sixth, were due to drowning, and this included 21 who went down with the F-4.

The three predominant causes of death in the Navy are drowning, pneumonia, and strange to say, tuberculosis. These three causes of death all show upon analysis improvement over preceding years.

It is difficult for us to understand why 11 per cent. of all deaths in the Navy were due to tuberculosis, and this in a year that showed a lessened death rate from tuberculosis. Applicants for the Navy are picked men. During last year only 30.18 per cent., not quite one-third, of all ap-

plicants were accepted as fit for the service. These men were selected by very competent medical examiners, and a rather rigid examination is made. Considering the fresh air opportunities of the sailor and his lessened proximity to tuberculosis infections, taken with his physical fitness and freedom from disease on joining the Navy, this seems an unexpected death rate from tuberculosis.

In this connection it is well to note that the Surgeon General states "that no Navy in the world is as well fed, as well clothed, its general welfare so thoroughly looked out for as that of the United States." This statement is confirmed by Mr. Hector O. Bywater, a naval authority, when comparing the personal care of the American bluejacket with the best European naval standards.

PAY THE PHYSICIAN

It was never the intention of the workman's compensation act to force free service from the physicians who attend clinics. Yet that is exactly what is being done in many cases. The *Medical Economist* calls public attention to the fact, which is a matter of common knowledge among surgeons and their friends. This is part of the statement printed by *The Economist*:

So far as the writer can find out the present practice of the medical corporations of New York City with regard to the moneys received for compensation cases varies greatly. A few institutions do what is right and give the fees to the doctors who do the work. A few others give the physicians half or a smaller part of the fee. But most of them disobey the intent if not the letter of the law.

Certainly the surgeons who give their skill and labor in clinics make a sufficient contribution through the great number of wholly philanthropic cases. There is no reason why they should be deprived of the money set apart by employers to meet the cost of attendance on injuries incurred by their workmen.

"These people come to the free clinics in great numbers," declared a busy New York surgeon. "We treat them, but we cannot take any pay for what we do in such institutions. We are more or less hardened to seeing the privileges abused, in one way or another. I asked one very well dressed man who came for free treatment how much he earned and he answered 'Seven dollars a day.'"

Doubtless there are features of medical and surgical practice which need reform from within. Standards need to be raised in some quarters. But if we are to employ physicians at all nothing can excuse such injustice to them.—*New York Evening Sun.*

PHYSICIANS EXCLUDED FROM NEW HOSPITAL.

Chicago is, in the near future, going to open a magnificent new municipal hospital for the isolation and care of patients sick from contagious diseases. We have been informed that the general profession will be excluded from this institution. Just why this is so has not been explained, but we predict that those officers responsible for such a ruling, if it is made, will have some difficulty in explaining why to both the laity and the profession, and that they will close the tenure of their offices with the odium they will so justly deserve.

In the old contagious disease hospital a physician might treat his diphtheria patient. In the Municipal Tuberculosis Sanitarium the law gives the physician the right of treating his tuberculous patient, if the patient so desires, and there can be no valid reason why the family physician may not treat his patient in a contagious disease hospital.

The Health Department has constantly talked quarantine, has where possible enforced quarantine, and has time and again asked the profession to co-operate with the department for better quarantine methods. The profession has seen the need of isolation provisions, and has devoted its energy to having a municipal contagious disease hospital erected. Once the hospital is erected the department with its super wisdom foresees the family doctor is incapable of caring for those infectious diseases in the municipal hospital—at home he has not been found incompetent by the family.

If isolation of the sick is the best method of preventing the spread of contagious disease, why should not isolation be encouraged, and why should the family physician be deprived of caring for his patient, or why should the patient be deprived of the physician of his choice? If the department wishes the support of the profession in eliminating contagious disease and in isolating those who have contagious disease, why does it not give the profession credit for at least mediocre ability, and treat it with a deserving courtesy?

The cry put up by the authorities, of course, will be that it would cause confusion and lack of discipline in the hospital if an outside physician were admitted to its portals. General hospitals of any size are open to the profession, and this has proven both feasible and successful. We

venture to say that a contagious disease hospital, open to the profession, will not have such scandal attached to it as has attached to certain charitable institutions in the past, nor will it have such spread of infection as now occurs in some of our public institutions.

The light of publicity may be a good thing for the patients confined in an isolation hospital. The private physician is a servant of the public, and as such is entitled to the educational advantages which can be obtained in any of the municipal institutions. The public has the right to demand that the physician keep abreast of the times with his medical education, and should afford him the opportunity for educational advancement through the municipal hospitals. Hospital methods which may thus be given the general physician go far in promoting efficiency in the profession.

We hope those in authority will review their decision, open their eyes and see what is the better plan of operation, and give the profession the opportunity to isolate and care for those contagious patients in a manner acceptable to the people who built the institution and to the profession that is always looking after the best method of serving humanity.

MEDICAL LEGISLATION.

This year bids fair to be an important one in medical legislative matters. Enforced health insurance is attracting the attention of doctors in all the states. It is certain that health insurance bills will be presented to the assembly in Illinois. Just what form these bills will take is as yet unknown to us; but it behooves the profession to be on guard, and to work for an insurance bill which will be acceptable to the physician.

In years past it has been difficult for the legislative committee to get physicians to act, or to act in time to be of real assistance. This year every physician in Illinois should be ready to do at once what the social insurance and the legislative committees request him to do. It takes but a few minutes to write or telephone your congressman.

The obnoxious optometry bill passed the last legislature largely because it was impossible to get doctors to advise with their legislators, or to do so at the right time. When a bill has been enacted, it is too late to go to your congressman and ask him to defeat it.

If every member of the Society will keep him-

self posted on these various social insurance bills, and will keep in touch with his congressman, there will be less difficulty in keeping out of the statutes of Illinois laws objectionable and unfair to the profession. Doctor, you should now get in touch with the times.

NOTICE

Beginning with the January, 1917, issue, the *Louisville Monthly Journal of Medicine and Surgery* will become the official organ of the MISSISSIPPI VALLEY MEDICAL ASSOCIATION, appearing with that issue in new dress and under the name of the *Mississippi Valley Medical Journal*. The proceedings of this Association have been for years of the highest scientific nature, and the appearance in full of papers and discussions in convenient form for binding will enable members and subscribers to preserve these valuable proceedings.

Dr. Henry Enos Tuley, Secretary of the Association, will continue as Editor; Dr. H. H. Grant as Business Editor, and a special Editorial Committee, composed of the following, will assist in the editorial policy of the Journal: Drs. William N. Wishard, Indianapolis; Arthur R. Elliott, Chicago; Willard J. Stone, Toledo, Ohio, and Louis Frank, Louisville.

Public Health

ANNUAL SUMMARY OF STATE HEALTH WORK.

In the annual summary of state departmental work which is collected at the end of each year for official purposes, the following accomplishments are credited to the Illinois State Board of Health. While largely devoted to 1916, the data collected this year includes certain activities for the past two years being arranged in this way for the information of the General Assembly, which meets biennially.

1. The enactment of a large number of salutary health laws by the Forty-Ninth General Assembly; more sound health laws than had been passed by any previous legislature. Many of the more important of these measures had been recommended to the Governor in the annual report of the State Board of Health for 1914 and published in the *Illinois Health News* for January, 1915.

2. The establishment, for the first time, of an efficient system of registration of births and deaths through which Illinois will doubtless be accepted by the United States Bureau of the Census as a registration state and will be relieved of the odium of its former lack of such recognition.

3. The division of the state into sanitary dis-

tricts, each of which is under the supervision of a full time medical health officer appointed through Civil Service. Five districts have already been created.

4. The creation of the office of state epidemiologist, an expert who is charged with the diagnosis in doubtful cases of communicable diseases and with the suppression of epidemics of such diseases.

5. The creation of a Sanitary Engineering Bureau under the direction of competent sanitary engineers and equipped with laboratory facilities and especially charged with the supervision of water supplies, sewage disposal, inspection of school buildings and the property of common carriers, the conduct of sanitary surveys, etc. Until this time, Illinois has never had such a department, essential as it is to adequate public health supervision.

6. The extension of the work of the Central Diagnostic Laboratory at Springfield and the establishment of four branch laboratories for the convenience of physicians and health officers in the north, south, east and west sections of the state. There has also been created a portable field laboratory to be employed in epidemics where laboratory facilities are not otherwise available.

7. Extension of the service of the board in supplying, without cost, preventive and curative vaccines, sera and other agents. The board now supplies, through its five hundred agents scattered through the state, diphtheria antitoxin, typhoid vaccine, smallpox vaccine, nitrate of silver solution for use in the eyes of the new-born and the Schick test to determine immunity to diphtheria. Smallpox vaccine also is supplied for free vaccinations.

8. Standardization of the rules and regulations for the control of all communicable diseases and the uniform application of such rules, for the first time, in all sections of the state.

9. Establishment of a Bureau of Dairy Inspection devoting itself chiefly to the supervision of dairies situated outside the jurisdiction of incorporated cities and villages and, hence, up to this time, under no governmental control.

10. Development of a comprehensive system of popular health education, including the publication of entirely new pamphlets on the care of infants, tuberculosis, infantile paralysis, the care of infants and similar subjects; the publica-

tion of a popular monthly health journal; noteworthy traveling health exhibits; a loan collection of motion pictures, stereopticon slides, etc., a regular weekly press service for newspapers, etc.

11. The advancement of standards in the Examination and Licensure of Physicians and Other Practitioners along rational lines until, at the present time, the medical educational standards of Illinois compare favorably with those of any other state in the Union.

In addition to the cordial relationship maintained with local health officers and physicians, the work of the State Board of Health has been rendered more effective by a close co-operative relationship with the various extra-governmental agencies interested in special lines of public health endeavor.

Among the important measures recommended by the State Board of Health for legislation by the Fiftieth General Assembly, which will convene immediately after the first of the New Year, are the following:

1. The creation of a Division of Tuberculosis. This is rendered necessary by the ever increasing interest in the prevention and suppression of tuberculosis and imperative by the creation of county tuberculosis sanatoria, dispensaries and nursing services throughout the state. Eight such organizations were adopted at the last general election and it is not unlikely that a score or more will be created at the next general election. The State Board of Health is charged, under the provisions of the county sanitarium law, with approval of plans for all county tuberculosis institutions. In addition to this, it must be recalled that, up to this time, Illinois has done less than any of the major states in the warfare against this disease.

2. The creation of a division of Child Hygiene and Public Health Nursing.

3. The creation of a division of Industrial Hygiene.

4. Extension of the service of Dairy Inspection with increased powers to act.

5. Provisions for doubling the number of sanitary districts of the state with full time medical health officer in charge of each district.

6. Separation of the public health functions of the State Board of Health from those having to do with the examination and licensure of phy-

sicians and enforcement of the Medical Practice Act.

7. An amendment to the Medical Practice Act providing reciprocity in medical licensure for those licensed prior to July 1, 1909.

8. An amendment to the Medical Practice Act providing for the revocation of licenses of physicians and other practitioners addicted to the use of narcotic drugs or found guilty of major crimes, and of those adjudged mentally unsound.

9. The expansion of the functions of the Sanitary Engineering Bureau to provide for an organized service for municipal and rural sanitary surveys, sanitary inspection of schools, hotels and public buildings.

EXCLUSION OF UNVACCINATED CHILDREN FROM SCHOOLS UPHOLD.

INJUNCTION DENIED.

A number of cases of smallpox having developed in December in the city of Rockford, the Board of Education directed the exclusion from the public schools of all unvaccinated children, as required by an ordinance of the municipality.

An application for an injunction restraining the school board and the city authorities from enforcing such ordinance was referred to Master in Chancery E. H. Marsh, by whom the injunction was denied. In his decision Mr. Marsh held that the defendants are public officials, vested with discretionary power and that no fraud, corruption, oppression or gross injustice having been shown and that there being no showing that the necessity which gave rise to the action had ceased to exist, the injunction should not be granted.

A SERVICE GUIDE OF THE STATE BOARD OF HEALTH

The October number of *Illinois Health News*, the official bulletin of the State Board of Health, appears in the form of a service guide of the various activities of the Board, giving to health officers, physicians and laymen complete information as to what service the "medical department of the State government" is prepared to render and just how this service is obtained. In the preface to this service guide it is said: "The State Board of Health will prove just as valuable to the various cities, towns and communities of Illinois as these communities choose to make it. The State maintains a relatively complete machinery for meeting the sanitary and health needs of the people. * * * Realizing that the State health machinery, however

perfect, is of little value unless known and utilized by the people, these facts on how to obtain the service of the State Board of Health are set forth."

The service of the Board, under the existing organization, is divided into: 1.—Educational Service; 2.—Technical Advice; 3.—Laboratory Service; 4.—Distribution of Preventive and Curative Sera and Vaccines; 5.—Bureau of Sanitary Engineering; 6.—Bureau of Vital Statistics; 7.—Dairy Inspection; 8.—Lodging House Inspection, and 9.—Examination and Licensure. The educational service, available without cost to the people of Illinois, consists of the distribution of sixteen new circulars on the various preventable diseases, infant welfare, disinfection, etc.; the monthly Health News, a popular health journal; large, mechanical health exhibits; small, portable exhibits; a loan collection of motion picture films and stereopticon slides; a lecture service on public health subjects together with a loan collection of health lectures ready to be used by local lecturers and a weekly press service reaching all of the newspapers in the State. A new feature is a public health loan library through which health officers are supplied with text-books and treatises on health subjects.

The technical advice service consists of special investigations by the Bureau of Sanitary Engineering, the State health officers, the State epidemiologist, dairy inspectors and other representatives of the Board; the special investigation of all cases of poliomyelitis and the advice of municipalities in local sanitary problems and in the drafting of health ordinances and codes.

The laboratory service, which is being used more and more by the physicians of the State, includes free examinations for the diagnosis of tuberculosis, malaria, diphtheria, typhoid fever and syphilis. Wasserman tests are made free only for indigent persons. Examinations are made of presumed rabid animals and treatment is given without cost to those bitten by such animals. The laboratories consist of a central laboratory at Springfield, with branches for the diagnosis of diphtheria at Chicago, Mount Vernon, Urbana and Galesburg and a traveling laboratory employed by the State epidemiologist in the field in times of epidemic or emergency. A laboratory for the examination of water supplies, sewage, etc., is being established in connection with the Bureau of Sanitary Engineering.

The preventive and curative agents furnished free by the State Board of Health, through its agencies, at least one of which is to be found in each county, are: diphtheria antitoxin, typhoid vaccine, smallpox vaccine and packages of nitrate of silver solution for use in the eyes of infants at birth. The Schick test, to determine the immunity of the individual to diphtheria, can be obtained only through the office of the Board at Springfield. The service guide, incidentally, contains a complete list of the State Board of Health agencies in Illinois.

The Sanitary Engineering Bureau investigates municipal and private water supplies and sewage disposal;

passes upon and recommends municipal sanitary installations and improvements; makes sanitary surveys of municipalities; inspects schools; investigates the sanitary conditions of stations, work camps and rights of way of railways; investigates sanitary conditions of summer resorts and outlines plans for mosquito extermination.

This brief summary, covering but five of the nine departments of activity, indicates the broad variety of useful service which the physicians and people of Illinois may obtain through the State Board of Health entirely without cost. In looking over the list it seems that there is hardly any form of local health activity in which the Board is not ready to cooperate, giving facilities for efficiency otherwise unobtainable. The service guide should serve as a key to open up to the people the facilities of the Board, many of which have been relatively unknown throughout the State in spite of the general policy of publicity about them.

A SERIES OF HEALTH CIRCULARS FOR SCHOOL CHILDREN

Recognizing the difficulty in reaching certain classes of adults with health education and appreciating the readiness with which school children of the present day master health subjects even of a rather technical character, the State Board of Health has begun the publication of a complete series of health circulars for school children. The first of these was issued early in the month under the caption: "How to Avoid Disease." The other circulars will follow in quick succession.

"How to Avoid Disease" is rather general in character, teaching the theory of the "seed and the soil" in the transmission of communicable diseases. The analogy of the seeds of plants and flowers to the germs of disease and the soil to the human body is carried out in a manner which is strikingly simple and entertaining. With all of the simplicity and attractive style, the text remains strikingly true to the tenets of scientific medicine.

It is said that this is the first series of the kind ever published in the United States and that it has met a definite need is indicated from the fact that, upon its first announcement and before the circular was off the press, a request for a thousand copies had been received, these to be used as the basis of essays in Illinois schools.

Take heed of jesting—many have been ruined by it. It's hard to jest and not sometimes jeer, too, which oftentimes sinks deeper than was intended or expected.

If the wicked flourish and thou suffer be not discouraged. They are fatted for destruction. Thou art dieted for health.

Disease is the nation's greatest burden?

TUBERCULOSIS NOTES.

An X-ray of the child with "tuberculous infection" will probably show tuberculous disease of the bronchial lymph glands, especially where possibility of infection exists.

The successful treatment of pulmonary tuberculosis makes it imperative that an early diagnosis be made.

The most frequent methods of onset of pulmonary tuberculosis are a neurasthenia, a pleurisy, a fever, an anæmia, a pneumonia, a persisting laryngitis and a pulmonary hemorrhage. Remembering these methods of onset will often aid in the early diagnosis so essential to recovery.

The general symptoms of a case will often make a diagnosis where no definite physical signs can be found with the stethoscope.

Dinan in his investigation of blood-pressure before, during and after pulmonary hemorrhages has found (1) that hemorrhage from tuberculous lungs is never due to high blood-pressure, but (2) that the bleeding consumptives have lower blood pressure than the average consumptive, and (3) that blood pressure for the hemorrhage case, just before the hemorrhage, is lower than the normal of that case, that (4) the blood pressure rises during the hemorrhage, and (5) that the blood pressure remains high for a short time after the hemorrhage and then slowly falls to what it was before the hemorrhage.—Maher, *Medical Record*, Aug. 5, 1916.

Dilatation of the veins of the chest and forehead in children should bring to mind bronchial gland tuberculosis.

Cases of tubercular meningitis in children that have come to autopsy show almost invariable tuberculosis of the bronchial lymph glands.

In 1,200 cases of diseases of the air passages in soldiers, 560, or practically 50 per cent., were cases of pulmonary tuberculosis.—Hochhaus, *Deut. Med. Woch.*, Sept. 11.

A persistent cystitis, with frequent urination day and night, and especially if accompanied by hæmaturia, should bring to mind renal tuberculosis.

Society Proceedings

ADAMS COUNTY.

Members of the Adams County Medical Society, who were unable to attend the November meeting at the Hotel Newcomb missed one of the best sessions the society has had in months. The feature was an illustrated lecture by Dr. C. St. Clair Drake of Springfield, secretary of the Illinois State Board of Health. His subject was, "Why a State Board of Health?" He told why a state needs such an organization by reviewing the activities of the board since it was first created, explaining what has been done, what the board is doing now, and what it is to do in the future, including medical legislation and general sanitary laws. Dr. Drake spent some time discuss-

ing the birth and death registration act, adopted at the last session of the legislature, at the same time showing a film entitled "Tommy's Birth Certificate." He talked of better babies and told what the board has done and is doing in the better-baby campaign. In connection with this subject he showed a film entitled "Summer Babies," illustrating the work of the Infant Welfare Society of Chicago. Communicable diseases and methods of prevention were also most interestingly shown.

Dr. Drake told of the work of the bureau of communicable diseases. This bureau consists of state epidemiologists with four district health officers, each officer having a district in which he keeps posted on the general condition of health and sanitation, number of contagious diseases, methods employed to prevent spreading and with what success, and other information which helps in the campaign for better health. The fourth reel was "The Man Who Learned." It was a pure milk film, illustrating the need for cleaner dairies and cleaner milk for better babies. The talk was very timely, following as it did the lecture by Dr. East of Galesburg, one of the most efficient health officers in Illinois. Dr. East lectured before the Medical Society at its meeting in October.

At the business session of the society, Dr. Frank R. Morgan was voted a member, and the application of Dr. W. A. Trader was read. It was voted to return to the original plan of having day meetings during the Winter. The sessions have been held after supper for nearly a year. Members living in the country find it is not easy to attend night sessions in the Winter, and for their convenience it was decided to have day sessions for a period of six months. Twenty-seven members were present, including Drs. J. L. Aleshire of Plainville, G. E. Whitlock of Columbus and W. E. Mercer of Liberty.

ELIZABETH B. BALL, Secretary.

Regular Meeting, December 11, 1916

The Adams County Medical Society held its meeting at the Hotel Quincy, Monday, December 11. The attendance was large and the meeting proved a very good one. The election of officers resulted as follows: President, J. L. Aleshire of Plainville; vice-president, Dr. Walter Stevenson of Quincy; second vice-president, Dr. C. E. Ericson of Quincy; secretary, Dr. Elizabeth B. Ball, Quincy; treasurer, Dr. J. H. Blomer, Quincy; censors, Dr. D. M. Knapp of Mendon, Dr. Kirk, Shawgo, and Dr. Warren Pearce, Quincy; defense committee, Dr. John A. Koch, Quincy; delegate, Dr. H. P. Beirne; alternate, Dr. R. J. Christie, both of Quincy.

A resolution was passed instructing the secretary to extend the sympathy of the society to Mrs. J. H. Rice, because of the illness of her husband, and to send flowers. Dr. R. J. Christie introduced a resolution that the society give its hearty support and co-operation to the city council and all organizations interested in the health survey to be made here. Dr.

C. D. Center offered an amendment that the members not only give their hearty co-operation but aid the officials making the survey in every way possible. Both the resolution and the amendment carried.

Dr. L. H. A. Nickerson offered a resolution that the society endorse the action of the city council in passing the milk ordinance and refusing to strike out two important features of the same, namely, the tuberculin test and the temperature of the milk for delivery, the required temperature being 55 degrees.

The January meeting will be held January 8 at the Hotel Quincy, and will be in the evening instead of in the forenoon. On this occasion a banquet will be given in honor of the retiring officers.

ELIZABETH B. BALL.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY

Regular Meeting December 6, 1916.

The Bone Diseases Frequently Seen by the Practitioner; Pathology and Diagnosis; Lantern Slides and specimens. Richard R. Smith, Grand Rapids, Mich. Discussion by D. W. Graham, Lawrence Ryan, Harry Mock, A. G. Zimmerman and Paul Magnuson.

Regular Meeting December 13, 1916.

The Late Operative Results in Exophthalmic Goiter. Vernon C. David. Discussion by J. J. Moorehead.

Hunger and Appetite in Disease. A. J. Carlson, University of Chicago. Discussion by Bertram W. Sippy and J. C. Friedman.

The Diagnosis and Management of Urethral Calculus; Lantern Slide Demonstration. Lewis Wine Bremerman. Discussion by Filip Kreissl and Charles M. McKenna.

Regular Meeting, December 20, 1916.

Seminal Vesiculectomy, Illustrated with Lantern Slides. John H. Cunningham, Boston, Mass., well-known author on genito-urinary subjects. Surgeon to the Boston City Hospital and widely known professionally. Discussion by W. T. Belfield, L. E. Schmidt, G. Kolischer, D. N. Eisendrath and H. L. Kretschmer.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held Nov. 22, 1916, with the president, Dr. A. A. O'Neil, in the chair.

EXPERIENCES IN BONE SURGERY OF THE PRESENT WAR IN FRANCE.

Dr. Fred H. Albee of New York City related his three months' experience in the war zone, saying that he had had the opportunity of going over France pretty thoroughly, visiting the trenches, and was at the front. A large percentage of the plastic surgery of this war is devoted to bone, joint, nerve and tendon surgery. There is not so much soft tissue surgery on account of infection and laceration of parts, etc. The longer the war lasts the more plastic surgery there would be of all types. Plaster of paris is

not as desirable an agent for the controlling of fractures as one might think. Personally, he had been accustomed to using plaster of paris a great deal and expected to find it used considerably in Dr. Blake's Hospital, but he found that it was not used very much, as in the case of large lacerated wounds it could not be applied very well. Traction frames are used, putting the limbs up in the position of neutral muscle pull with the various angles that the adjustable frame will allow.

As to the specialization in surgery, there were hospitals devoted to the perfection of artificial limbs, the adjustment of the artificial limb, and the preparation of the stump for the artificial limb. It is wonderful what has been accomplished in this respect. The author presented moving pictures of the Dakin-Carrel method of sterilization of wounds, and spoke of the advantages and what had been accomplished by this method. This is one of the big things that has come out of the war from a surgical standpoint.

DISCUSSION

Dr. Kellogg Speed said that in the English army they do not use very much plaster of Paris, so far as his knowledge went, but they depended very largely for a permanent dressing and for transportation of the wounded on various wire, metal and wood splints, of which the Thomas splint is a shining example. This has been adapted to cover almost any type of injury and is used extensively for shipping the wounded men across the English channel. No soldiers are sent from English base hospitals across the channel to England until they are in proper condition for such transportation. If a soldier is septic or it is impossible to move him on account of a fracture, he is held, regardless of rush or any other condition, until it is absolutely safe to put him on board a boat. He did not know of one case that passed his hospital in which a man suffered a secondary hemorrhage or a fatal termination during the course of transportation.

They obtained the same results with a little different method perhaps than that which Dr. Albee had shown. Instead of using drainage tubes, they frequently used simply a rubber fenestrated drainage tube, and instead of having elaborate apparatus for irrigation, the nurses are required to go around every two hours and instill the solution with a small hand syringe. The results were excellent. In addition to Dakin's solution he had used hypertonic salt, particularly for wet dressings, and he believed surgeons will come to adopt that in this country for diffusely suppurating surfaces, inasmuch as it causes the outpouring of lymph, which overcomes infection.

Dr. H. M. Richter stated that in the hospital in which he worked in Germany there was a great number of infected wounds—in fact, it was rare to see a clean wound. Ninety-five per cent were shell wounds, but with the battle on the Somme they began to get more rifle wounds. Previous to that time, however, more than 95 per cent were shell wounds. These wounds were ugly, were badly lacerated and all infected. They had approximately 1,500 beds distributed among fourteen buildings. Three buildings were fixed up for surgical work. There were 170 beds in a building. Such a hospital group of 1,500 beds was always located near a railroad, so that the wounded soldiers could be carried from the front to the base hospital. McDill of Milwaukee was carrying out the Dakin method of treatment of wounds, while the speaker and his associates carried out various other methods in addition to Dakin's method. They irrigated the wounds or used a continuous flow, employing the little glass bulbs that are associated with Murphy's continuous drip saline enemas to see at what rate they were using the solution. They put a suture through the tube and skin to hold the tube in place and irrigate in that way. They used horic

solution, salt solution, plain water and iodine solutions. They found that where they left a wound widely open it would clean in a few days, but where a wound was not left open it remained dirty for a long time. Wounds that were kept wide open from the beginning got well very quickly, while those wounds that were made by pieces of shell going through the thigh or arm, with small openings, got well slowly.

Regular Meeting, Nov. 29, 1916.

A CLINICAL AND EXPERIMENTAL STUDY OF THE METASTATIC ARTHRITIDES; A REVIEW OF THE 859 CASES FROM THE CLINICAL AND ANIMAL EXPERIMENTATION OF THE LATE DR. JOHN B. MURPHY.

Dr. Phillip H. Kreuscher, who read the paper, stated that it was based on a study of 859 clinical cases. Particular stress was laid on the following points: 1. Every case of acute general infection is surgical and must be treated surgically. 2. Those lesions thought to be infections in the joint cavities are in reality infections about the joints, outside of the joint cavity. 3. There is a definite incubation period for every metastatic arthritis. 4. The joint fluid does not contain bacteria in a large percentage of the cases. 5. Metastases to the joints occur because of a definite, logical reason.

The treatment of metastatic arthritis was surgical. Arthritis no more belonged to the domain of internal medicine than did acute fulminating appendicitis. Treatment by internal medication and external applications was as irrational as the same treatment applied to a perforating gastric ulcer.

Regular Meeting, Dec. 6, 1916.

THE BONE DISEASES FREQUENTLY SEEN BY THE PRACTITIONER; PATHOLOGY AND DIAGNOSIS; LANTERN SLIDES AND SPECIMENS.

Dr. Richard R. Smith of Grand Rapids, Mich., pointed out that the bones are constantly undergoing certain changes during infancy and youth. They showed marked changes in growth and structure, in keeping with other parts of the body; but during old age they undergo atrophy and change such as other parts of the body do. Bone atrophy is a condition with which the practitioner comes in contact clinically. Bone atrophy occurs in one of three ways: Through lacunar absorption, through canalization and through halisteresis, producing somewhat different forms of atrophy, but still all belonging to this general category. The first type of atrophy he called attention to is that due to old age. Senile atrophy may affect the whole skeleton. It affects the long bones and spongy vertebrae. These vertebrae become porous and friable, so that one may saw through them as fast as they would through rotten wood. The bones of the cranium and bones of the face are especially liable to senile atrophy. All are familiar with the atrophy of

the lower jaw as seen in old age. The bones of the cranium show these changes.

Regular Meeting, Dec. 13, 1916.

THE LATE OPERATIVE RESULTS IN EXOPHTHALMIC GOITER.

Dr. Vernon C. David said that of 200 successive cases of exophthalmic goiter operated upon at the Presbyterian Hospital from 1905 to December, 1914, 11, or 5½ per cent, died in the hospital. Of the operative procedures lobectomy was done 60 times, curing 24, greatly improving 21, slightly improving 13, and failing to benefit 2 patients. In their cases 38 per cent were cured and 40 per cent were greatly benefited, while Judd and Pemberton, in a report of 121 cases operated in 1909, report 45 per cent cured and 30 per cent greatly benefited, making in each instance about 75 per cent of all cases that received a marked benefit or cure from the operation.

HUNGER AND APPETITE IN DISEASE

Professor A. J. Carlson of the University of Chicago gave a lantern slide demonstration of many experiments, showing the contractions of varying degree which take place during the digestion and as hunger increases. When the hunger pangs are very severe they constitute almost a spasm. When there is moderate hunger the contractions come on very slowly and are simply an exaggeration of the contractions of digestion. Within the last two or three weeks he has been able to demonstrate with bismuth meal just when the pylorus opened and he thinks that fact will throw new light on the so-called hunger pains in gastric and duodenal ulcer.

DIAGNOSIS AND MANAGEMENT OF URETERAL CALCULUS.

Dr. Lewis Wine Bremerman stated that of 89 cases which had come under his observation, 87 were males and 2 were females. In 22 cases the stone was in the lumbar portion of the ureter; in 8 cases in the iliac portion, in 51 cases in the pelvic portion and in 8 cases in the intramural portion. There were only 2 cases in which there was more than one calculus. In one case one stone was impacted in the lumbar portion and the other in the intramural portion. In the second case both stones were impacted in the intramural portion and showed only one shadow in radiogram. There was only one case of bilateral ureteral calculi and one case of ureteral stone on one side and a renal pelvic stone on the opposite. The author recommended a method which he considers safe, one in which there is no mortality, and in which there are no serious after complications. This method consists in dilating the ureter below the stone with appropriate instruments and with the aid of the operating cystoscope. This may usually be accomplished without even a local anesthetic. Occasionally one dilation is sufficient, but in most cases it is necessary to dilate several times.

Regular Meeting, Dec. 20, 1916.

SEMINAL VESICULITIS AND PROSTATITIS TREATED BY VESICULOTOMY AND PRO- STATIC DRAINAGE.

Dr. John H. Cunningham of Boston stated that the selection of cases for seminal vesiculotomy should include those who have any of the local or general manifestations dependent upon acute and chronic focal infections in these organs, which cannot be overcome by the usual nonoperative methods of treatment.

He submitted a clinical classification which serves to select the cases suitable for operation, namely, the inflammatory group, rheumatic group, pain group and neurasthenic group. His operative experience includes 36 cases in the inflammatory group, 67 in the rheumatic group, and 8 in the pain group. There has been no mortality. He has operated on no cases in the neurasthenic group, but many of the patients falling under other headings had neurasthenic symptoms which improved or disappeared with the relief of their material symptoms. In the inflammatory group there are 36 cases. Fourteen of them were of the acute variety, three having suppuration in the prostate as well, and two, besides showing pus in the vesicles and prostate, had a unilateral suppurative epididymitis. There were four other cases in which rupture of the vesicle or prostatic suppuration had invaded the ischio-rectal fossa. There were five cases in which the suppuration was confined to the vesicles.

Twelve of these fourteen cases can be considered cured, and all showed the immediate improvement incident to the evacuation of pus from whichever source. With the establishment of drainage, pain was relieved, the temperature and leukocytes dropped; and it remained only to care for the infection in the urinary tract. Twenty-two of the thirty-six cases in the inflammatory group were of the chronic variety, having received local treatment over periods of months or years, the process being relatively quiescent at times to be followed by acute exacerbations without known cause or from obvious lowering of the general or local resistance. In the rheumatic group there were 67 cases. Many of these patients had been invalids periodically for many years. Some had non-articular affections, while others had multiple joints and tendon affections. Seven had so-called spurs of varying types on the under surface of the os calcis, and when present were always bilateral. Most of the cases had received nearly all known forms of treatment with varying benefit, but none had been cured. Complications attending the operation are the opening of the rectum, postoperative hemorrhage, and epididymitis.

J. V. FOWLER, M. D., *Secretary.*

Carry a fine handkerchief and then forget to cover your mouth when you cough?

When our vices quit us we flatter ourselves, that is, we who quit them.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held May 22, 1916. The president, Dr. William E. Gamble, in the chair.

THE PURPOSE AND PLANS OF THE ILLINOIS SOCIETY FOR THE PREVENTION OF BLINDNESS

Miss Carolyn C. Van Blarcom stated the purpose of the society to be the prevention of unnecessary blindness and to conserve vision through the efforts of a lay organization. The eyes of new-born babies should be treated prophylactically, and affected eyes should be subjected to treatment. The society is a go-between between the medical profession and the lay public. Its plans are to digest medical teachings and place them before the general public, and to bring under medical supervision the largest possible number of afflicted babies. This is not so simple as might be thought. The Illinois Society has been in existence actively for three years. It has secured the enactment of the excellent law for the early reporting of such cases to the State Board of Health. In Illinois the gratuitous distribution of the prophylactic medicine is provided for, and adequate dispensary facilities are already in existence in the state. This makes an almost ideal machinery to cope with this problem. In a short time there have come under the observation of the speaker six blind or partially blind children in Chicago, which blindness would have been preventable. The society is as yet doing foundation work only in Chicago. This blindness is solely due to the lack of proper care, and it is the purpose of the society to supply this lack. The speaker cited various instances of cases of preventable blindness, one instance showing a reprehensible lack of attention on the part of a physician. The gist of the cause in all these instances was ignorance and neglect. The remedy is through the dissemination of information and bringing to the lay public a realization of the seriousness of the condition.

Secondary infections are as serious as the primary infections. It is important for the mothers to take the children to the eye clinics, leave them in the hospital, when necessary. This measure is sometimes enforced by the arm of the law. An instance of this was cited, as occurring in Chicago. If the need is realized, relatives will usually take the babies to the dispensaries, on their own initiative. Widespread publicity is of fundamental importance.

The Illinois law requires the reporting of cases of sore eyes in infants within six hours. This is for the benefit of the babies which are not under medical care. A frank endorsement and enforcement of this law by vigorous methods is essential.

The speaker related the experience encountered by the organization in Massachusetts, and the great success they attained was accomplished by publicity and prosecutions.

The burden of this work rests upon the medical profession. It is the business of this Society for the

Prevention of Blindness to place before the lay public the recommendations of the medical profession. The principal needs are publicity and compliance with the reporting law. A nurse is needed, however, for the investigation of local situations and conditions. It is desirable to know the particulars about all the babies treated in the eye clinics and to follow up such babies, especially those whose mothers have failed to return to the clinics when instructed. Also the society should know about babies taken from the hospital against the advice of the doctors. Card statistics for information are desirable. The great need of lecturers before clubs, organizations, churches, settlements, schools, etc., in this co-operation is needed by the members of the Chicago Ophthalmological Society. Lantern slides can be supplied. The organization needs the united backing of the Ophthalmological Society in its work.

DISCUSSION.

President Gamble said he had felt the need of organized work in this direction, and that it is the duty of the Chicago Ophthalmological Society to help. The president said that the chair would entertain a motion for the appointment of a committee to draft resolutions endorsing the work of the Society for the Prevention of Blindness.

It was moved, seconded and carried that a committee be appointed to endorse the work of the Illinois State Society for the Prevention of Blindness, and the chairman thereupon appointed as members of such committee Drs. Findley, Suker and Tivnen, who retired and later brought in a report, which is embodied in the minutes.

Dr. George F. Suker said that dispensary cases have been neglected by the dispensary men. The dangers in these cases have not always been duly explained by the clinic men to the parent. There has been, in some cases, an absolute failure of this duty. It is absolutely wrong to treat these gonorrheal patients as dispensary cases. They should be treated in the hospital. Most of the cases occur among people who are eligible to admission to the Cook County Hospital. The baby is the innocent victim in these cases. A goodly majority of the gonorrheal eye cases occur after the first child is born. The cause is due to the damnable rascality of the man.

The speaker said he would not hesitate to denounce any minister who would not permit lectures of this kind, as suggested by Miss Van Blarcom, to be given from his pulpit.

Dispensaries should be required to report these cases promptly for hospital treatment. All the hospitals should be forced to take such cases, even if they are not "financially profitable" to them; at least, their interns and nurses would get valuable experience and the hospitals owe this much to them and to the public at large.

Dr. Thomas Woodruff said that very few hospitals will take cases of babies with infected eyes, unless they have private rooms. The Society for the Prevention of Blindness has been endorsed by the Chicago Association of Commerce and occasional hearings before the ways and means committee of that organization have been promised.

It is the duty of the state's attorney to prosecute any physician, midwife or others present at birth of babies who violate the law. This society will bring to the attention of the proper authorities any failure to report babies' sore eyes and let them act.

The Society for the Prevention of Blindness desires an endorsement from all possible sources and desires to organize branches throughout the cities of this state. Lecturers are badly needed, as stated.

Dr. Joseph C. Beck pointed out the intimate relations between the eye, ear, nose and throat and reported some unusual cases which were grouped under

each of the following headings: 1. Labyrinth irritation from the eyes and vice versa. 2. Ethmosphenoiditis with orbital cellulitis simulating cavernous sinus thrombosis. 3. Infected ethmoidal cyst with periodical exophthalmos. 4. Recurrent unilateral iritis of eighteen years' duration. 5. Non-suppurative sinusitis causing practically blindness, diffuse-dema of the retina, operation, followed by complete recovery of vision. 6. Tumor of hypophysis with unusual complications. Post-mortem findings and description of a new operation. 7. Suppurative dacryocystitis cured by the canaliculo-nasal route.

DISCUSSION.

Dr. Harry S. Gradle stated the case of anterior ethmoidal cysts was of particular interest in that the ocular findings were negative. The vision was normal; the fields were normal; no central scotomata could be found and the blind spot was not enlarged. We are accustomed to look for disturbances in these functions, in purulent disease of the ethmoid, because of the extension of the disturbance towards the apex of the orbit. The optic nerve is here involved and the changes can be detected. In all likelihood, the extremely thickened periosteum that was found during operation prevented any spread of the ethmoidal trouble towards the region of the optic nerve.

The case of recurrent irido-cyclitis was of special interest in that no definite etiological factor could be found. To the speaker's mind there are two possibilities; the first and the least probable is that of sinus disease of long standing, low-grade type. The second and more likely of the two is a chronic enterogenous intoxication.

The relationship between the eye and the ear is of extreme interest, and presents one phase which Dr. Beck has not brought out. This is manifest in the deafness which occurs during the course of a sympathetic ophthalmia. Such cases have been reported to the number of twenty-three and have been explained theoretically on the assumption of Elschning's anaphylactic theory of sympathetic ophthalmia. According to Peters of Rostock, the basal membrane of the labyrinth contains a small amount of pigment identical with the pigment found in the uvea. Consequently any sensitization of the body by antigenic absorption of uveal pigment will also sensitize the labyrinth which may be involved in an anaphylactic outbreak. This would explain the deafness of the bilateral labyrinthine type that occasionally accompanies sympathetic ophthalmia. He had occasion to see such a case in consultation recently.

Dr. Beck, in closing the discussion, said that in this craze for ascribing infection to the teeth, tonsils, sinuses, appendix, etc., the strong probability of lues and gonorrhea as etiological factors has become somewhat overlooked. The teeth are now receiving very much attention from all possible sources. This particular patient shown by the speaker is malnourished and needs to have good food hereafter.

The subject of the pigment in the labyrinth is yet to be demonstrated histologically.

BONY TUMOR OF THE VITREOUS CHAMBER SPRINGING FROM THE CILIARY BODY.

Dr. Heman H. Brown reported the following case:

J. Fuller, aged 18 years and 4 months; only child; family history so far as could be determined is good. No evidence of eye disease in either parents or parents' families. No trace of tubercular trouble with patient or families. Aside from the eye difficulty, the patient seems perfectly normal in every way. Except measles, there has been no physical illness during her entire life. Her birth was normal (no instrumental delivery), and at birth the child in every way seemed physically normal. At four months

of age the right eye became very red and inflamed, causing great suffering. The attack of inflammation lasted for two months, during which time she was under the care and treatment of a competent ophthalmologist, who pronounced the case glioma of the retina, and advised the removal of the eye. The inflammation, however, slowly subsided and the eye assumed a state of quiet, but the pupil remained widely dilated and fixed, with a distinct yellow reflex. This dilatation remained a permanent feature of the eye. (The mother thinks the eye was blind after the first attack, but previous to that time had noticed nothing to attract attention to the eye.)

Three months later the patient suffered a second attack of inflammation similar in its manifestations to the first though shorter in duration. Glioma was again diagnosed and enucleation advised. The diagnosis was concurred in by a consultant at this time.

Following this seizure the eye assumed a slightly staring appearance. No further difficulty was experienced until at five years of age, when she suffered another attack of inflammation. This was the most severe of all, and the ophthalmologist in attendance again advised enucleation to avoid, as he stated, rupture of the eye-ball. There is no evidence at hand of irritation or disturbance of the left eye at any time. Aside from an occasional redness of the right eye, with little suffering, lasting but for a few days at a time, no further disturbance was experienced until three weeks previous to the time she consulted me, on August 15, 1915. At that time the following conditions were present:

Left eye: Vision, 20/20; normal in every way. Right eye: Light perception only, and in a state of general inflammation. This condition, she stated, had existed for three weeks. The cornea was slightly steamy in appearance, with bulging at the nasal side and noticeably thinner. Springing immediately from the limbus, there existed a wedge-shaped abrasion of the cornea, at its base four millimeters in width. This extended directly across the center of the cornea to the limbus on the temple side. Above and below the apex of this abraded area an imperfect view of the eye chambers could be had. The pericorneal injection was deep, indicating a marked ciliary inflammation. The sclera likewise deeply injected. The anterior chamber deepened and iris out of sight. Aqueous and lens slightly turbid. Although the media could be imperfectly viewed, yet the yellow reflex from the posterior chamber could be seen quite distinctly. The motion of the eye ball was entirely unimpaired, but the upper lid edematous and dropping. The suffering to the patient was excruciating. The history of the case and its present physical findings suggested but one course to follow, namely, enucleation, which he did under a general anesthetic on September 9, 1915. When under the anesthetic a hard tumor could be distinctly felt within the eye chamber, apparently smooth in its outline. The eye, after enucleation, presented nothing of particular interest. There were no adhesions to the orbital contents or marks of cicatricial contraction in the sclera, as might be expected after a traumatism.

The pathologist designated the tumor as a form of coloboma with a fetal inclusion of bony tissue.

In conclusion Dr. Brown called attention to three points of interest: 1. The quite evident fetal origin of the tumor. 2. The confusion which may arise from diagnosis of tumors of the new-born eye. 3. The entire bone formation would seem to have confined itself to the ciliary body.

DISCUSSION.

Dr. Adolph Gehrmann said that in this specimen we have bone which is perfectly quiet. There is no evidence of any new growth or retrogression of the bone. There is bone in the ciliary portion and also farther back. Active growth or degenerative change through the osteoclasts at the time of the enucleation is out of the question. The tumor is absolutely benign. As to bone formation after injuries, there is one statement in the literature that the bone extends to the lens. The occurrence of bone after injuries occurs about as bone develops after injuries elsewhere when there are persistent inflammatory or circulatory changes.

There are three theories as to how and when this growth occurs as a metaplasia. First, Cohnheim's theory of fetal inclusion of embryonic cells; secondly, bone formation on account of changes in the blood vessel walls, the protoplasm laying down bone itself; thirdly, the bone theory of Ribbet that bone cells get free and float through the circulation and lodge at various points and form new bone structures.

In this case evidently the formation occurred early because of the quiescent and the comparative youth of the patient. Whether there was any fetal inclusion originally is a matter of surmise. There is a possibility that bone is formed in the fetus and that in the body later in life may be caused through the same circulatory disturbance which is in the nature of calcification of cells around the blood vessels. Thus we obtain the structure of the bone and the peculiar relation to the blood vessels and their walls. Bone may be found in any very vascular location and also where vascularity has been brought about by initiation and congestion as in keloids or in muscles where pressure has irritated for a long time. Sometimes, as in a case shown by Dr. Day, bone was found in the lungs. In Dr. Brown's case there may have been some choroidal disturbance in early life with the formation of a shell of bone in the choroid and in the adjoining ciliary body. It is certainly perfectly well formed, quiet bone structure that has not changed for many years.

Dr. Brown, in closing the discussion, said that there is no lack of literature upon bony shell formation in the vitreous chamber, having their origin in the capillary system of the choroid. They are very common. But an individual confinement as this is to the ciliary process is unique, and especially so in that there is no possible evidence of injury which seems to precede bony formation, such as we find the literature teeming with. There is no pan-ophthalmitis, no external irritation or infection; a bone formation arising from the ciliary process, without a previous history of injury, is rather unique.

Dr. George F. Suker reported two cases, one of fat implantation into the eviscerated scleral cavity and the other a case of implantation of fat into the capsule of Tenon after an enucleation. The speaker expressed the belief that ocular operations should be for two purposes, one primarily for the surgical and functional effect, and the other for the cosmetic effect. The speaker has found but few conditions which demanded enucleation in which he could not do an implantation of some sort or another. Recession of the upper lid is avoided and a much greater range of motion is obtained by implantation. The simple enucleation is not the ideal surgical procedure according to the accepted meaning of that term. The implantation method takes longer and the strictest surgical

technic must be observed. The reaction following is much greater than in a simple enucleation. The transplantation of fat of the self-same patient is the best; the absorption of the fat is very little, especially when put into the scleral cup. The fat is usually taken from the side of the abdomen on the same side of the body as the enucleated eye. The piece of transplanted fat is generally about again as large as the ball itself when put into Tenon's capsule, and when put into the scleral cup a little larger than the eye itself,—avoid undue pressure and manipulation of the fat.

GRUNDY COUNTY

Members of the Grundy County Medical Association and men connected with the medical profession were entertained at the home of Dr. H. M. Ferguson, Morris, Ill., December 1. A lecture on "Bone Surgery" was given by Dr. C. R. G. Forester, of the Westside Hospital, Chicago. Dr. Forester was a guest of Dr. Ferguson and gave his lecture by special request.

The lecture was technical and based on actual experience of Dr. Forester in the operating room and was interspersed with explanations and anecdotes of treatment of unusual fractures. A resolution to ask the supervisors to provide for indigent tuberculosis patients was passed.

Seventeen members and visitors were present.

IROQUOIS-FORD COUNTY

The thirteenth annual meeting of the Iroquois-Ford Medical Society was held in Watseka, Ill., December 5, 1916.

After a surgical clinic held in the hospital, where various operations were performed by different members of the society, the society met at the Iroquois Hotel, where we were entertained at dinner and smoker, followed by an address by Dr. E. B. Coolley of Danville.

Dr. Coolley had to cut his address short on account of catching his train.

The annual election resulted as follows: President, O. O. Hall; vice-president, F. B. Lovell; secretary, S. S. Fuller; censor, W. F. Buckner; delegate, H. D. Junkin; first alternate, R. N. Lane; second alternate, D. W. Miller; legislative committee, N. T. Stevens, S. S. Fuller and J. L. Shawl.

A paper entitled "Our Secretary" was read by Dr. D. W. Miller. A vote of thanks was tendered Dr. Miller for serving the society for three years as secretary.

On motion the secretary was directed to communicate with each member of the society and get an expression on dividing the society into two organizations—one for each county.

Seventeen members and visitors were present.

D. W. MILLER, Secretary.

McHENRY COUNTY.

The sixth annual outing meeting of the McHenry County Medical Society was held at Leonard's Hotel on the east shore of Crystal Lake, Friday, August 11, 1916.

Eighteen members were present.

A brief statement of the finances and membership was presented by the secretary and accepted as presented. A communication from the Legislative Committee urging medical men to take an active part in state politics in the interest of the profession and the people and showing how Senator A. J. Olson and Representatives Graham, Shurtleff and Vickers voted on the notorious Optometry Bill, which was fought for years by the medical profession and finally succeeded last year in squeezing through by one vote in each house. Vickers was the only one who aided the Doctors by voting and working against this notorious bill.

The following officers were elected: President, N. L. Seelye, Harvard; vice-president, C. W. Goddard, Harvard; secretary-treasurer, Hyde West, Woodstock; censor, W. V. Gooder, Marengo; delegate for two years, A. B. Smith, Woodstock; alternate for one year, C. C. Peck, Harvard.

Dr. A. J. Markley then made a few remarks relative to his candidacy for the State Legislature, calling attention to the fact that each Doctor should be able to influence fifty votes, and if every Doctor would take the time and trouble to do so what a power the medical profession could be in securing good, clean constructive legislation.

Dr. Edwin P. Sloan then read a highly instructive paper on "Intestinal Stasis," bringing out many valuable points in connection with the work of Bainbridge and as exemplified in his own work.

Dr. H. D. Eaton's paper on the "Practice of Medicine in Mexico," being based on personal experience of some years, was highly interesting.

Following the scientific program the meeting adjourned for dinner.

N. L. SEELYE,
Secretary-Treasurer.

Regular Meeting, October 13, 1916

The October meeting of the McHenry County Medical Society was held in the City Hall at Marengo, Friday, October 13, 1916, at 10:30 a. m. Eleven members were present.

Dr. J. E. Allaben, of Rockford, gave the Society a very interesting talk upon the subject, "Some suggestions Upon the Treatment of Hypertrophied Prostate." The subject was a most interesting one and very ably presented, Dr. Allaben bringing out some very valuable points. The paper provoked a lively discussion which was useful to all. A rising vote of thanks was tendered Dr. Allaben, and we hope that we may have the pleasure of another visit in the near future.

Adjourned for dinner.

HYDE WEST, Secretary.

Regular Meeting, November 16, 1916

The November meeting of the McHenry County Medical Society was held Thursday, Nov. 16, in the Princess Theatre, Woodstock, at 10:30 a. m., nineteen members present.

Dr. Glenn E. Wright, a member of the Chicago Medical Society, who recently located at Crystal Lake, was elected to membership in this society.

After the regular business was dispensed with the

president called upon Dr. Richard H. Street, of Chicago, president of the Illinois State Homeopathic Society, who gave a short talk on "Modern Medical Education." The meeting was then thrown open to the laity, who were invited by card to hear the speaker of the meeting, Dr. Gilbert FitzPatrick, who presented a most excellent paper upon the subject, "The Teaching and Practicing of Modern Obstetrics." This was illustrated by lantern slide and moving picture, the latter demonstrating a Caesarean operation. This paper was of inestimable educational value as well as interesting, and was generously discussed by the Doctors in closed meeting. Despite bad roads, the turnout was good, and everyone felt repaid for having come, as this was an unusually good meeting.

A vote of thanks was tendered Drs. Street and FitzPatrick, also Mr. John Miller, proprietor of the Princess Theatre, who so kindly donated the theatre for the occasion. Adjournment for dinner.

HYDE WEST, Secretary.

ROCK ISLAND COUNTY

Few meetings in the history of Rock Island County Medical Society have equaled the December meeting in interest and attendance. Through fortuitous circumstances we were able to have Dr. Fred H. Albee of New York City as guest of honor.

Scott County Medical Society and Iowa and Illinois Districts Medical Society were invited to attend this meeting. Sixty physicians sat at the dinner, which preceded the meeting, and over one hundred listened to the address.

Dr. Albee has recently returned from France, and the subject of his address was "War Experiences in France." He described his work in bone graft, illustrating each step by moving pictures of the operation. He also described the Carrel method of sterilization of wounds, which was illustrated in the same manner. He related many incidents which came under his own observation, which illustrated the wonderful self-sacrifice of many scientists at work in the European war. At the close of his address the societies gave him a rising vote of thanks.

A. E. WILLIAMS, Secretary.

Personals

Dr. Jacob I. Krebbs, Polo, is under treatment at a sanatorium in Freeport.

Dr. Frank M. Barker, Waukegan, was operated on for appendicitis, December 12.

Dr. Wm. C. Meacham has removed from Somanauk and will locate in Ontario.

Dr. Hugh Q. Allison, Grayville, who has been ill with pneumonia in a hospital in Olney, is convalescent.

Dr. John L. Porter conducted an orthopedic

clinic at the Blodgett Memorial Hospital, Grand Rapids, December 6.

Dr. Hayes W. Carlin, Chicago, suffered a fracture of the left leg by the overturning of his automobile, November 20.

Dr. J. Elliott Royer, Chicago, has been elected professor of neurology in the College of Medicine of the University of Illinois.

Dr. Ralph H. Kuhns has returned to Chicago after eight months' experience as surgeon in a base hospital in West Prussia.

Dr. Lincoln S. Lacy, Pittsfield, has been appointed surgeon of the Wabash System, succeeding Dr. Samuel B. Peacock, resigned.

Dr. Otto L. Schmidt, Chicago, was elected second vice-president of the Chicago Historical Society at its annual meeting, November 21.

Dr. Geo. P. Gill, of Rockford, gave an address, December 5, to a large audience at Lena on his experiences in the war zone in France last year.

Dr. Armandus Horn, of Chicago, is said to have been asphyxiated by carbon monoxide escaping from glass tubes that were accidentally dropped.

Dr. Charles Paul White, of the class of 1915, Northwestern University Medical School, and ex-interne of Wesley Memorial Hospital, has located in Kewanee.

Dr. Gottlieb A. Luric, Chicago, has been appointed by the state board of health district health officer for the southern district of Illinois, with headquarters at Mount Vernon.

Miss Harriett Fulmer, for many years head of the Visiting Nurses Association of Chicago, has taken up her new position as head of the public health work of Cook County, which includes all the territory outside of the city.

Dr. J. Elliott Royer, Chicago, has returned from three years' special work in neurology, in Germany and England—the last year being in the military service—and has been elected assistant professor of neurology in the College of Medicine of the University of Illinois.

Drs. B. W. Sippy, A. F. Sippy, Fred J. Diennen and Gatewood were in an auto on the way to the Presbyterian Hospital, but arrived as patients instead of attending physicians, owing to a collision with a truck. Dr. A. F. Sippy sustained a fracture of a rib and Dr. Diennen, a fracture of the hip. The others were cut and bruised.

News Notes

—Rockford physicians found their offices so full of applicants for vaccination during the recent smallpox epidemic that they could not attend to other patients.

—Dr. Gideon H. Hoffman has been elected president; Dr. Peter J. McDermott, vice-president, and Dr. Ira M. Miller, secretary-treasurer, of the Kewanee Physicians' Club.

—At the annual meeting of the Chicago Institute of Medicine, held December 5, Drs. Frank Billings, N. S. Davis and Frank S. Johnson were elected members of the board of governors.

—The question of birth control is said to be of increasing interest to women's clubs. Debates have shown a great variety of opinions both on this and the somewhat related one of bastardy.

—The Public Health Service has forbidden the prescribing of heroin by officers of the service. It is hoped that this example will influence physicians generally to use less dangerous agents.

—"Dr." Clarence J. Keysbee of Austin was arrested by the federal officers on the charge of smuggling drugs from Canada. He was also arrested for peddling drugs from a stolen automobile.

—Trouble is brewing in the Juvenile Court, Chicago, for physicians who do not report births promptly. It is claimed that birth reports are a necessary check on parentage in the cases that come before the court.

—A loud rattling of skeletons will be heard when the United States district attorney discloses the names of the would be great who have invested in fake diplomas. It is said that the fakes are not limited to Illinois nor to medical institutions.

—St. John's Hospital, Springfield, has just completed, at an expense of \$10,000, a new free dispensary which contains ten rooms for minor surgical, medical, genito-urinary and nose and throat work, a milk modification laboratory and a dispensing room.

—Dr. Joseph B. DeLee, Chicago, is quoted to the effect that 50,000 babies and 20,000 mothers die annually in the United States because of improper care at childbirth, in an address at the annual meeting of friends of the Chicago Lying-in Hospital and Dispensary.

—The Institute of Medicine has received a home and club-house at 2636 Prairie avenue, from Mrs. Frank Coolidge, in memory of the late Dr. Frank Coolidge. Dr. Frank Billings, Dr. Frank Johnson and Dr. N. S. Davis were elected to the board of governors.

—A child at Bald Mound developed infantile paralysis as diagnosed by Dr. Crawford, state health inspector, and five other physicians. Another physician attributed the symptoms to a fall it had sustained some time previously, though it had been up and around after the fall.

—At the annual meeting of the Illinois Society for the Prevention of Blindness, November 21, Mr. Charles S. Hutchinson was elected president, and Drs. Edward V. L. Brown, Frank Cary, William H. Wilder, and Thomas A. Woodruff were elected members of the executive committee.

—The regular respiration of a man accused of murder while being examined, the respirations being recorded on the "pneumograph," convinced the jury that he was insane. The instrument is said to have been perfected by Dr. A. A. Dolear of Jacksonville. The trial was before Judge Hickman at Pittsfield.

—The new Robinson Hospital is completed and Drs. Herbert N. Rafferty, Cyrus E. Price, Jonas W. Carlisle and A. Lyman Lowe have moved their offices into the new building. A reception was tendered to the local neighboring physicians at the hospital, November 24, and it was opened on the following day.

—Additional gifts for the endowment of the great medical institution mentioned in the December Journal have been announced by President Judson as follows: \$300,000 from Frederick H. Rawson, president of the Union Trust Company, and \$200,000 from Charles H. Rud-dock, of New York, formerly of Chicago.

—The following officers were elected at the close of the forty-third annual meeting of the North Central Illinois Medical Association at Pontiac, Dec. 7: President, Dr. Fred Wilcox, Minonk; vice-presidents, Dr. D. S. Conley, Streator; Dr. O. B. Will, Peoria; secretary-treasurer, Dr. George A. Dicus, Streator.

—The twenty-fourth meeting of the Robert Koch Society for the Study of Tuberculosis was held at the Hotel Morrison, December 21. Dr. Roswell T. Pettit, Ottawa, spoke on "The Importance of Mixed Infection and Pulmonary

Tuberculosis," the discussion being led by Dr. James L. Anderson of the Chicago Winfield Sanatorium.

—Junius B. Wood has been running a serial history of the colored people of Chicago in the *Daily News*. According to the historian, one Jean Baptiste Point de Saible, a free colored man from Santo Domingo, was the original settler 137 years ago. At present the colored element is increasing rapidly and their sanitary and health problems will become a matter of public concern.

—A case involving a new point of law occurred in the court of Judge Joseph B. David in connection with a claim for damages on account of injury to the spine in a street car accident. The claimant, a woman, is a member of the Pentecostal Church and refused medical treatment, depending on prayer for a cure. The company claimed that medical treatment would have reduced the damage.

—The International Hobo College, 915 West Washington street, Chicago, was recently opened with classes in English, journalism, law, nature study, first aid to the injured and public speaking. It is said that Dean Walter Pond of the Cathedral has offered the school the use of the cathedral gymnasium, where they can become expert in Japanese jiu jitsu, French savate and Marquis of Queensberry rules. Hobos are migratory workers and should not be confused with bums or tramps.

—The directors of the Fenger Memorial Fund announce that the sum of \$500 has been set aside for investigations in medicine or surgery in 1917. The money will be used to pay all or part of the salary of a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work undertaken should have a direct clinical bearing. Applications giving full particulars should be sent to L. Hektoen, 629 South Wood street, Chicago, before Jan. 15, 1917.

—Plans for a new infirmary, to cost \$500,000 and to be an integral part of the Municipal Tuberculosis Sanatorium, have been completed by the architect, Mr. Jarvis Hunt, and are under the direction of Dr. Albert J. Ochsner. The infirmary will have a large roof garden; kitchen

and dining-rooms will be on the top floor; on three sides there will be direct sunlight; at the south end of each floor will be a large sun parlor, and there will be an English basement for the provision of light occupation for patients. The building is intended to handle only such patients as are too ill for cottage treatment.

—At the annual meeting of the Illinois Association for the Study and Prevention of Tuberculosis, held at Springfield, November 9 and 10, the name of the organization was changed to the Illinois Tuberculosis Association and the following officers were elected: president, Dr. George T. Palmer, Springfield; vice-presidents, Dr. William A. Evans, Chicago; Hon. E. M. Mangan, Aurora; Dr. Charles B. Johnson, Champaign, and Dr. Lewis C. Taylor, Springfield; secretary, Dr. Jeanette C. Wallace, Peoria, and treasurer, Mr. David R. Forgan, Chicago, and executive committee, Drs. James W. Pettit, Ottawa; Ethan A. Gray, Chicago; Edward W. Fiegenbaum, Edwardville; Orville W. McMichael, Chicago; Mr. George W. Perkins, Chicago, and Mrs. L. A. Adams, Jacksonville.

—The Council of the Chicago Medical Society adopted the following resolution at the meeting, November 14:

Realizing the value to a community of scientific articles in the newspapers when the same have been prepared by scientific men, or are the results of investigations by authorities in the field of medicine and surgery, the council of the Chicago Medical Society approve of the publication of such facts as will tend to promote the physical welfare of the people, but decry the publication of sensational articles which are not founded on facts based on intelligent and honest research, and would welcome such co-operation between the lay press and the organized medical societies as would prevent the harm that ensues from the publication of articles which are misleading and untrue. Therefore, be it

Resolved, That the council of the Chicago Medical Society request the great newspapers to use every means to prevent their being exploited by unethical physicians.

Marriages

NATHANIEL ISADOUR BASKIND, M. D., Chicago, to Miss Marian Propp of Des Moines, Iowa, in Chicago, November 22.

EMIL BUNTA, M. D., to Miss Emily Howard, both of Chicago, at Crown Point, Ind., October 28.

CHARLES D. CAMP, M. D., to Miss Lillian A. Harris, both of Chicago, November 25.

WILLIAM GUSTAVUS SACHSE, M. D., Morris, Ill., to Miss Edith Janet Naden of Newark, Ill., November 30.

CHARLES EDWARD SCHARF, M. D., to Miss Graze Elizabeth Mullin, both of Chicago, November 30.

ANTHONY THOMAS WEBER, M. D., to Miss Hazel Lucile Berton, both of Chicago, at Crown Point, Ind., November 16.

Deaths

RODNEY J. BUNCH, M. D., Table Grove, Ill.; St. Louis University, 1906; a Fellow of the American Medical Association; for two years assistant superintendent of the St. Louis City Hospital; died at his home, December 7, from acute miliary tuberculosis.

JAMES A. CLYNE, M. D., Joliet, Ill.; Albany, N. Y., Medical College, 1886; aged 56; a Fellow of the American Medical Association; once president of the Will County, Illinois, Medical Society; for twenty years local surgeon of the Chicago & Alton Railroad; health commissioner of Joliet in 1893 and 1894; died at his home, recently, from disease of the throat.

HENRIETTA M. FARQUHARSON, M. D., Chicago; Northwestern University Women's Medical School, Chicago, 1900; aged 50; a Fellow of the American Medical Association; a specialist in diseases of the eye; died at her home, December 9.

JOSEPH PHILIP JONES, M. D., Chicago; University of Michigan, Ann Arbor, 1890; a member of the Illinois State Medical Society; died at the home of his son, in Marcellus, Mich., November 25, from cerebral hemorrhage.

GEORGE PASFIELD, M. D., Springfield, Ill.; Washington University, St. Louis, 1886; aged 85; surgeon of Camp Butler, near Springfield, during the Civil War; one of the wealthiest land owners of the state; died at his home, December 11.

NELSON L. SWEETLAND, M. D., Newark, Ill.; Rush Medical College, 1867; aged 73; a veteran of the Civil War; died at his home, November 21.

THOMAS LEIGH LANIGAN, M. D., El Paso, Tex., formerly of Lincoln, Ill.; Medical College of Indiana, Indianapolis, 1905; aged 34; died in El Paso from a bullet wound self inflicted while temporarily insane.

HERMAN ANSCHER, M. D., Chicago; Bennett Medical College, Chicago, 1890; aged 53; died at his home, November 24, from cerebral hemorrhage.

RILAND DILLARD BERRY, M. D., Springfield, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 61; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years a practitioner of Springfield; died at St. John's Hospital of that city, November 3, from cerebral hemorrhage.

MOSES SIMMONS BRUNDAGE, M. D., Rockford, Ill.; Rush Medical College, 1883; aged 58; died at his office, November 19, from heart disease.

JOHN CHARLES CROWELL, M. D., Paw Paw, Ill.; Rush Medical College, 1891; aged 58; died at his home, November 17, from cerebral hemorrhage.

CLAUDE BERNARD FOREMAN, M. D., Kane, Ill.; St. Louis College of Physicians and Surgeons, 1897; aged 41; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died in a hospital in Springfield, November 27, a week after an operation for appendicitis.

ALICE MITCHELL, M. D., Chicago; Women's Medical College of the New York Infirmary for Women and Children, 1885; aged 54; for twenty years a missionary of the Presbyterian Board of Missions at Woodstock, Mussowrie, U. P., India; died in Chicago, November 21, after a thyroidectomy for exophthalmic goiter.

DECOU CARPENTER MOULDING, M. D., Chicago; Dearborn Medical College, Chicago, 1906; College of Physicians and Surgeons, Chicago, 1909; aged 46; a Fellow of the American Medical Association; consulting physician to the Beulah Home and Hospital, and house physician at the Washingtonian Home; president of the White Cross League, and physician in charge of the Burr Oak Sanatorium, Wheaton, Ill.; died at the Augustana Hospital, Chicago, November 21, a few hours after an operation for perforating ulcer of the stomach.

ANDREW JAMES PARK, M. D., Oak Park, Ill.; Harvard Medical School, 1852; aged 90; formerly coroner and superintendent of education of Oxford County, Ont.; later a practitioner of New York and Chicago; well known as an astronomer and physicist; died at the home of his daughter in Oak Park, November 25, from senile debility.

NORA JOHNSON ROSS, M. D., Chicago; Chicago College of Medicine and Surgery, 1911; aged 47; a Fellow of the American Medical Association and a member of the staff of the Mary Thompson Hospital; died at her home, December 1, from septicemia.

FRANCIS ADAM P. SIEBER, M. D., Chicago; Rush Medical College, 1883; aged 75; a veteran of the Schleswig-Holstein and Franco-German wars; once health commissioner of Lake View; died at his home, November 24, from chronic nephritis.

WILLIAM HENRY STRENG, M. D., Richmond, Ill.; Chicago College of Medicine and Surgery, 1907; aged 38; a Fellow of the American Medical Association; was instantly killed, November 21, at a grade crossing in Waukegan, Ill., in a collision between a Chicago and Milwaukee Electric train and the automobile in which he was riding.

WILLOUGHBY WALLING, M. D., Chicago; University of Louisville, Ky.; aged 68; a member of the Illinois State Medical Society; United States Consul at Edinburgh, Scotland, from 1885 to 1888; for four years head of a wholesale drug firm in Indianapolis and later a specialist on diseases of the ear, nose and throat; died at his home, November 27, from myocarditis.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI

CHICAGO, ILL., FEBRUARY, 1917

No. 2

Original Articles

SOME OBJECTIONS TO HEALTH INSURANCE LEGISLATION.*

EDWARD H. OCHSNER, B. S., M. D.,

CHICAGO.

That the economic condition of the average married laboring man who lives in a large industrial center is extremely precarious because of ill health and unemployment, is a well established fact. That some form of relief for this condition is desirable is equally evident. That the various forms of relief such as commercial insurance, sick benefits, organized charities, etc., have proven inadequate and unsatisfactory and that sooner or later some attempt will be made to secure State Health Insurance is equally evident.

In considering laws for the regulation and the relief of such conditions a number of important points must be kept in mind. Such laws should provide for the greatest good for the greatest number and they should do this without injury to any large class engaged in a legitimate business or profession. Every care must be taken that the laws do not introduce new evils greater than the ones they are intended to remedy.

In considering new and untired legislation it is not sufficient to convince oneself that such legislation would be advisable from an idealistic and theoretical standpoint; it is even more necessary to determine definitely that the proposed laws cannot be abused to such an extent as to make the abuse worse than the difficulties which are to be overcome. In this connection it may be interesting to some of you to know that in some parts of the State of Illinois the Mother's Pension Act is already shamefully abused. As a result of this mal-administration, the State of Illinois, in some of its counties, at least, is now

engaged in subsidizing the breeding of defectives and criminals. To be sure this is as yet indulged in only to a very limited extent, but there is no telling how far this may develop as time goes on. The Mother's Pension Act specifically provides that only good moral women are eligible for the pension, and yet our inspector has found a number of cases where women who are not even married are getting a pension for one or two children. In one instance a woman who has six illegitimate children is drawing pensions for two of them and at the same time living with a gentleman friend who is not her husband.

State health insurance would probably affect the medical profession more than any other, and consequently special care must be taken not to injure the standards of this profession nor to lower the quality of medical service. The health, happiness, prosperity and efficiency of the citizenship of any nation depends more upon the integrity and ability of the medical profession and upon the quality of medical service rendered to its people than upon any one other factor, and any legislation which is inimical to medical progress will eventually react unfavorably upon the whole nation. In drafting health insurance laws, it is very important to avoid certain dangers and to not repeat the mistakes that have been made in charity medical practice, in dispensary practice and in contract practice. A common mistake in all of these forms of practice has been the insufficient remuneration of the physicians engaged in it. Good efficient service can only be secured if the remuneration is adequate. Another serious difficulty is, that medical services rendered without direct pay from the recipient is scarcely ever appreciated at its full value or followed with the same scrupulous care as is medical advice which is paid for directly by the recipient.

In contract practice there is still another serious difficulty. In practically every case which

*Read before North Side Branch of Chicago Medical Society, Jan. 12, 1917.

I have investigated, the clientele of the contract practitioner will call upon the physician on the slightest pretext, resulting in a great many unnecessary calls. If the physician's time and energy are dissipated on non-essentials it goes without saying that he will not have sufficient time and energy left for the essentials and almost without exception his interest lags and the quality of his service deteriorates greatly. These objections are not only theoretical, but they are borne out by the experience of all those engaged in dispensary, charity, medical and contract practice all over this country as well as health insurance practice in Germany.

There may be cases where contract practice is satisfactory, but they certainly are in the very great minority. Most of the thoroughly competent medical men with whom I am acquainted and who have been in contract practice have gotten out of it just as soon as they were able, because they have felt that they were not giving the best service of which they were capable.

That people who have free medical service are constantly unnecessarily running to the physician, is borne out by every contract practitioner with whom I have ever spoken and is one of the principle reasons why so many competent medical men leave contract practice. Besides it is borne out by the following very interesting experience.

One of the State universities of the central West established free medical care for its students some years ago. In a recent statement, the clinical department of this university reported that in a period of sixteen weeks it answered calls and made examinations to the number of 17,000 on a student population of about four thousand. In other words, every student in that institution on an average called upon the department a little oftener than once a month. When we consider that this occurred among students between the ages of 17 and 24, who ordinarily are in the best of health and who should require very little medical attention, we will realize to what abuses free treatment is apt to be put. At the above rate a panel physician with 500 families with an average of four members to each family would be required to make over 24,000 calls a year or about 65 calls per day, including Sundays and holidays. When we

consider that little children, women during the child-bearing period, men in hazardous occupations and the aged need more medical attention than college students between the ages of 17 and 24, it becomes evident that the number of calls a panel physician would be called upon to make would be considerably in excess of the figures above given.

Health insurance practice in Germany has encountered the same difficulties and engendered the same abuses. I was told by health insurance physicians in Berlin that more than half of the calls which they were required to make were entirely unnecessary and would not have come in at all had the recipient been required to pay for the calls out of his own pocket.

I know of one physician, in a city in this State, who is the physician for a number of benefit organizations, who prides himself on making from forty to sixty family visits a day, besides doing some surgery and maintaining an office hour. Instead of priding himself on this accomplishment, he should be ashamed to admit it to himself, even in the dark. A patient recently described one of his visits, thus; The doctor rushed into the room; threw off his coat and sat down; asked the patient how he was feeling; before the patient had time to answer, wrote out a prescription, and rushed out of the house. Such medical service is worse than no medical service at all and is the kind of a thing that discredits medicine in the eyes of the thinking public.

It is stated that in some communities forty per cent. of the inhabitants never call in medical aid. While this is certainly undesirable, I would rather have sixty per cent. of the population have fairly efficient medical aid and the other forty per cent. have none at all, than to have, say, thirty per cent. have efficient medical aid and the other seventy per cent. have the kind of medical service just described. In the former case at least those who have intelligence enough to employ physicians will have fairly good ones, while in the latter event a very large per cent. of the citizenship will have poor medical service from no fault of their own.

In health insurance another very serious difficulty comes in, namely, the tendency of patients to malingering. Patients actually do feign sickness in large numbers when no real sickness exists.

This gives the physician a great deal of extra work, and consequently throws a great burden upon the honest members of the community who are insured in the same class. In this way there is considerable danger of making the thrifty, industrious, honest workman pay tribute to the shiftless and dishonest—a tendency which is already only too often encouraged by various remedial forms of legislation.

A mild form of malingering or deception which, however, in its totality, amounts to a good deal and has a tendency to seriously corrupt medical men, is the very attempt on the part of the insured to get a little more sick benefit than he is honestly entitled to. This tendency makes itself felt in the Workman's Compensation Act, but here the matter is somewhat equalized by the physician of the insured on one side and the physician for the insurance company on the other side. In health insurance, particularly if the insurance were State insurance, this check would be less effective because we all know how few people have conscientious scruples in robbing the State, and how unprofitable it is for any State official to attempt to prevent this exploitation. The result would be that the honest, conscientious worker, who will not stoop to unfair means in securing sick benefit, will be exploited to the benefit of the unscrupulous worker and the effect upon the medical practice will be even still more baneful because the insured will be very likely to choose the "easy" doctor—the one who will be inclined to stand for large sick benefits. The ultimate danger to scientific medicine can easily be foreseen, for even medical men must live and the conscientious medical man, when he sees his practice slip away to his "easy" competitor, will be compelled to ease up a little—to make out health certificates for longer periods than he thinks fair and just.

In this connection, let us also call attention to the fact, that the lazy, shiftless workman, who works only two weeks in the month, will pay only one-half as much towards the insurance fund as the workman who works faithfully every day, and yet the former will, if anything, be likely to receive more benefit.

We are suffering from one of the severest epidemics that has ever afflicted this country—an epidemic which has spread over the land like wild fire, and seems to be at its height just now,

and which might be termed "An Itching Palm for Easy Money." It is surprising how many people have become afflicted and how many are perfectly willing to eat the fruit when the other fellow has planted, nursed and tended the tree. It is high time that we considered first in our legislation the hardworking, conscientious members of our community and make "easy money" more difficult.

Contrary to the opinion generally expressed in these discussions, I believe that only those who would derive benefit from such health insurance should be taxed to maintain the system. It is claimed by some that such a system of health insurance cannot be maintained unless the State carry a portion of the burden. Personally, I do not think it would be fair to tax small tradesmen and shopkeepers or the farmer, particularly the renter, to support such a system unless they were included in it. The small tradesman and shopkeeper is already finding it very difficult to make a decent living and finds it practically impossible to acquire even a moderate competence for old age because of the crushing competition of mail order houses, large corporations, etc., even going without medical care for himself and family because he cannot afford it. Under these conditions, it certainly would be unfair to ask him to contribute to the medical care of others. The average farmer and farmer's wife, particularly the tenant, are the hardest worked citizens of the State, who also often go without medical aid because they cannot afford it, and unless they are included in the system, should not be asked to bear a portion of the burden. For these reasons, I believe, that if health insurance is established all the expense with the possible exception of State supervision should be borne by the insured and the employer.

In this country, at least, we suffer from still another serious difficulty and that is notoriously inefficient, more or less corrupt administration of government. It is a very serious question in my mind whether we have progressed far enough in civilization, far enough in administration of our government to make it safe for us to venture into this new field. Until we have devised means to eliminate spoils politics, favoritism, pull, nepotism and graft, it is a very great question whether health insurance will accomplish more good than harm in the end.

Let us go slow in this State, where the problems of government are so complicated because of the dual needs of the large rural districts and the large industrial centers, and let some State where the conditions are less complicated try out health insurance first. I am convinced that if a health insurance law were passed it would be very difficult to repeal it even if it be found after a time to result in favoritism and unfairness. Take as an illustration our pension systems in Chicago. A recent investigation by competent actuaries has demonstrated, we are told, that the Firemen's Pension Fund, the Police Pension Fund and even the Teacher's Pension Fund are hopelessly insolvent; that if a private insurance company were in such straits a receiver would be demanded for it immediately—and yet these funds are permitted to go on with the prospect of their getting into deeper and deeper water all the time.

Those best informed assure us that national prohibition will be an accomplished fact within five years and again those best informed assure us that liquor is the greatest factor in the production of poverty and that national prohibition will prevent poverty to a large degree. Would it not be best to ascertain first whether these two statements are true before we launch into health insurance?

The question naturally arises, who is going to administer health legislation, and have we now, or are we likely to secure suitable machinery for its administration? Shall it be the State, the city or the county? And have any, or all, of these political subdivisions so conducted themselves—say, during the past twenty-five years—as to make us willing to entrust this additional work to them? I have been a resident and citizen of Chicago for something over twenty-five years and have watched things rather closely, and am free to express the opinion that inefficiency and mismanagement have been the rule rather than the exception. It is true that there have been a number of notable exceptions of splendid business administrations, and yet who will deny that if any business concern had been as poorly managed as Cook county and Chicago have been in the past twenty-five years, it would have become bankrupt?

Just look back at the disgraceful management of Dunning, while under the care of the County, and, what could one expect of a Board consisting

of fifteen members who change every two years, most of whom have no qualifications for the position, except that they can obtain a few more votes than someone else. Look at our own city. It is reported in the daily press, that during the past year eleven real estate experts received \$130,000 for part time service appraising real estate. I am sure we would all like nice fat jobs at \$10,000 per year spending two or three hours a day giving our opinion on medical subjects of various kinds, but there are two serious difficulties in the way. First, there would not be enough money to go around for all of us and, second, not those best qualified, but those who have the most political pull would be almost sure to secure the most desirable positions.

Much of the confusion which exists on this subject, even in the minds of medical men today, is there because we have not kept clearly in mind the great inherent difference between preventive medicine on the one side and the care of the sick on the other side. Preventive medicine should, in the main, be a government function, because organized society, as expressed in government alone, can adequately handle this phase of the medical problem. Preventive medicine is peculiarly suited to government control while the care of the sick is utterly unsuited to it. The treatment of a sick person is a very personal matter and does not lend itself to wholesale impersonal methods.

The above statement is borne out by the history of medicine in this country during the last twenty-five years. Federal and State medicine, as exemplified in the Marine Hospital Service, the Army and Navy Medical Service and State Charitable Institutions, have done splendid service in preventive medicine. I need but mention the service rendered to the nation and the world by Reed in his discovery of the mode of transmission of yellow fever and the work done by others in bubonic plague, hookworm, the prevention of malaria and typhoid fever, etc. Federal and State medicine, to the contrary, have added relatively little to the methods of treating disease. I can emphasize this last statement best by saying that in my opinion these government departments have taught us less about the cure of disease and the healing of the sick than has either the Murphy clinic, the Mayo clinic, or my brother's clinic, or Dr. Pettit's Ottawa Tuberculosis Colony, or a number of

others which might be mentioned, any one of which has done more along this line than all of the agencies combined. When you consider the number of agencies and the number of patients under their control, it ought to convince us that if government controlled medicine is extended beyond its present confines, it is going to retard rather than accelerate medical progress on the side of curative medicine. The fact is that except in laboratory research work, where it cannot do so much harm, government regulation and red tape hampers the clinician to such a degree that he cannot do his best.

The successful practice of medicine depends fully as much upon the personal human sympathy which exists between the physician and his patient as upon the scientific problems involved, and if you take away the former and commercialize and wholesalize the practice of medicine you will alienate from it a large proportion of the big whole-souled human men who have made medicine what it is today.

Those who are so strongly in favor of health insurance legislation seem to be laboring under still another misapprehension. They seem to think that health insurance will either prevent poverty or cure the evils resulting from poverty. I feel, however, that it will do neither, that, in fact, health insurance would be only a palliative and like most palliatives, if persistently employed, will do more harm than good.

The present agitation for health insurance reminds me very forcibly of the medical experience with the hypodermic use of morphin and cocaine. Some thirty or forty years ago, when the hypodermic needle was first invented, many laymen and even some physicians were very enthusiastic about it and felt that now a remedy for the banishment of all pain from the world had been discovered. Gallstones, for instance, had lost their terror temporarily because a simple little injection would almost instantly still the pain. It took even physicians some time to realize that morphin was only a palliative and if persisted in the patient was actually made worse instead of better. In order to cure the patient much more heroic means must be resorted to—the gall stones must actually be removed with the knife.

While pain and poverty will never be banished from the world, pain has already been greatly

alleviated because medicine has largely substituted prevention and cure for palliation. Are we going to make the same mistake in attempting to relieve poverty that we made in attempting to relieve pain? I hope not. I hope instead we will try to strike at the root of the evil, to prevent most of it, to cure a large per cent of the remainder and to palliate only that which cannot be prevented or cured.

Pull, favoritism, spoils politics, nepotism, graft and parasitism are in the last analysis the factors that have been the ruination of more nations than all other causes combined, and I feel that until radical changes have been made in our administrative system, health insurance might be used by the spoils politician, the grafter and the parasite as a means by which to fasten themselves upon the back of the honest citizen of the State even more firmly than they are able to under the present conditions.

Let us cut out of the body politic the above baneful influences; above all, let us attempt to exterminate all human parasites who are sucking the life blood of our nation. If we can succeed in doing this, if we can make every citizen do his fair share of the country's labor, poverty will, in a large measure, be prevented and Health Insurance Legislation will be unnecessary.

2155 Cleveland Ave.

SOME INTERESTING LABORATORY INVESTIGATIONS IN TUBERCULOSIS.*

H. J. CORPER, M. D.,

Municipal Tuberculosis Sanitarium of the City of Chicago.

CHICAGO.

In presenting this paper today, dealing with what would appear at first inspection to be the preliminary presentation of problems without any relation to or bearing upon each other, it seems advisable to point out the purpose of these investigations and the ultimate goal that is being sought by their performance. As is well known, tuberculosis, in as far as a specific therapy is concerned, is still to be looked upon as in the dark ages; no empirical medicinal treatment has ever been found or developed as in the case of syphilis with its mercury and malaria with its quinine. To those of us who have attempted to grow the

*Read before the Robert Koch Society, Oct. 26, 1916.

tubercle bacillus it is easily appreciated what a saint's patience is required to work in this field. When we consider that it requires from two to six weeks for the organism to begin to grow or to produce disease in an animal as compared to the one and two-day growth of the pneumococcus and pus-forming organisms, the trials and tribulations of the investigator are appreciated. It is for this reason that even though the word therapy to the average mind conveys a simple thought, it is not to be applied in the simple sense to the working out of a therapy for tuberculosis. The proving of a therapy becomes more complicated the further we stray from a *specific magna sterilisans*, yet this is not the only therapy that can be considered by the investigator in this field as is attested to by our modern sanitarium methods of treating the great white plague, and also the use of artificial pneumothorax in this disease. Any adjuncts to our present-day methods that can be proved of value to shorten the duration of the disease must be considered as a therapy. Now, how can these improvements be developed? Only by an intelligent understanding of the organism causing the disease and of the host afflicted with the disease.

Let us consider now what can be included in a classification of a therapy for tuberculosis. In the first place, we may divide the therapeutic agents for tuberculosis into those that are intended to act upon the tubercle bacilli themselves—a direct therapy—and those that are to influence the disease by their action upon the host and thus indirectly upon the tubercle bacillus—an indirect therapy. Among the direct therapeutic agents we can expect a drug that will, when introduced into the body, kill the tubercle bacillus harbored there and thus produce a *magna sterilisans* in the Ehrlich sense, or we can expect a drug that will, when introduced into the body and kept there for a definite period of time, inhibit the growth of the tubercle bacillus for the time during which the drug persists in the body. It is needless to say that the time element of administration of the drug is an important factor in the consideration of any therapeutic agents. In previous investigations carried out by Wells, DeWitt, the author and a number of colleagues on the chemotherapy of tuberculosis, a number of interesting and enlightening facts were ascertained with regard to the direct therapeutic

agents. For instance, it was found that simple crystalloids like potassium iodide,¹ sodium sulphocyanate,² sodium arsenite,³ sodium cacodylate, etc., when introduced into the animal organism, were able to penetrate the tubercle and thus reach the tubercle bacilli within a short period of time after introduction and in concentrations closely approaching that attainable in the blood, while colloids like egg albumin and colloidal copper⁴ could not enter to any appreciable extent. The compounds, i. e., copper salts and the salts of the heavy metals that formed colloidal combinations when introduced into the body also could not penetrate the tubercle and thus reach the tubercle bacilli either to kill them or inhibit their growth. Thus it is easily seen that there are some drugs that are not even applicable or to be considered as direct therapeutic agents for tuberculosis.

In this earlier work it was also noted that certain drugs, notably the selenites and tellurites,⁵ could not be considered available (contrary to the predictions and expectations of an Italian investigator, Belfanti) since even though crystalloids in themselves, they were almost immediately reduced to an inactive form by the tissues of the body at the site of injection.

In carrying out investigations with organic compounds still unpublished the speaker, in conjunction with Mr. H. Nyvall, discovered another interesting fact that acted as a bar to the use of certain of these compounds. It is a known physiological fact that when certain compounds are introduced into the animal economy they are within a short period of time conjugated with other radicals and thus we are dealing, not with the original compound introduced, but with an entirely different conjugated compound or a mixture of the former and the latter. This was found to be the case with the benzoates and salicylates tried, the resultant conjugate being much less efficient in action toward the tubercle bacillus than the original salts introduced. In earlier experiments it was considered sufficient by us to analyze for the drug introduced and then draw conclusions on the basis of these analyses as to the efficiency of this drug, but the above investigations led to the development of a supplemental method — — —

1. Wells, H. Gideon, and Hedenburg, O. F.: Jour. Infect. Dis., 1912, II, 349-72.

2. Corper, Harry J.: Ibid, 1915, XVI, 38-46.

3. Arkin, Aaron, and Corper, Harry J.: Ibid, 1916, XVIII, 335-48.

4. Corper, Harry J.: Ibid, 1914, XV, 487-500.

5. Corper, Harry J.: Ibid, 1915, XVI, 47-53.

in which we test directly whether the drug, as it exists in the tissue and tubercle, is capable of killing or inhibiting the development of the tubercle bacillus.

In co-operation with Dr. Gekler, Mr. Sweany and Mr. Kallen, a number of quinolines,* were studied in the Municipal Tuberculosis Sanitarium laboratory for their chemotherapeutic value, paying especial attention to carbostyryl on account of its high tuberculocidal and inhibitory action and low lethal dose to the host, but here again we were confronted with an important fact; the rapid, almost instant, destruction of the drug upon introduction into the body by the tissues of almost all the organs, removing it from consideration as a direct therapeutic agent.

Thus it will be seen from the foregoing facts that the proof of the value of a direct chemotherapeutic agent in tuberculosis is beset with many difficulties and discouragements. Of the number of so-called direct treatments which have been recommended for tuberculosis none have stood the test of time and these recommendations could easily have been forestalled by proper and intelligent laboratory tests.

Let us now digress for a moment and consider some interesting facts about the tubercle bacillus itself before we take up the consideration of the indirect chemotherapeutic agents. In order to gain a more intelligent insight into the organism we are trying to destroy, it was deemed advisable to study the enzymes present in this organism, since these interesting catalytic substances are also capable of destroying certain organic drugs which might be tested for therapeutic efficiency. An example of this was noted in the above cited case with carbostyryl. Until within recent years the tubercle bacillus was considered lacking in these enzymes, but as improvements and refinements in methods are developed this small organism is found to possess many of them, but lacks others. In earlier experiments Dr. Wells and the author⁶ had demonstrated a lipase in the tubercle bacillus capable of splitting fats and this was corroborated by Dr. Kendall and his colleagues^{7,8} who also suggested that tubercle

bacilli autolyze, but did not directly demonstrate autolytic enzymes.

In co-operation with Mr. Sweany we have recently found the tubercle bacillus to possess autolytic enzymes, trypsin-like, pepsin-like, and erepsin-like enzymes similar to those found in the human stomach and intestines, but they possessed no enzymes capable of digesting starch or cane sugar.

While the tubercle bacillus is being considered, another important factor that is being investigated at the sanitarium might be mentioned in a preliminary way, however, since it is of tremendous importance and erroneous conclusions hastily drawn are not advisable. It is a known fact, observed many times, that tubercle bacilli grown artificially in the incubator eventually, after years, become practically avirulent so that tremendous doses of this avirulent organism will only produce a local tubercle without ever producing systemic disease in so susceptible an animal as the guinea pig. It is also known that there are tuberculous individuals who have suffered from open and active tuberculosis for many years, expectorating innumerable bacilli in this time. Are some of these individuals carriers of virulent bacilli and others carriers of avirulent or harmless bacilli as is the case in other diseases (diphtheria, etc.)? Gregg and Gilbert,⁹ in a brief report before the second annual meeting of the National Association of Immunologists at Washington, D. C., in 1915, stated that there was a difference. These authors were kind enough to send me their original manuscript in which they reported on six cultures freshly isolated from the sputum by the recent Petroff method. Their method of determining the dose given consisted of counting the bacilli by the well-known Barker method and injecting 10, 30, 60 and 100 bacilli. The range of minimum lethal number of bacilli, that is, the number necessary for causing generalized infection of guinea pigs, was considered on this basis. In no case did 100 bacilli fail to infect while the minimum lethal range lay between 10 and 100 bacilli. Our own method of investigation consisted in the dilution method which was not open to the criticism of exposing the individual bacilli to the action of light as occurred in the Barber counting method and because for practical purposes we are drawing very

*We wish here to express our kind appreciation to Prof. M. J. Bogert of Columbia University and the Eli Lilly Co. for supplying us with some of these compounds which could not be bought.

6. Wells, H. Gideon, and Corper, Harry J.: *Jour. Infect. Dis.*, 1912, Vol. XI, 388-96.

7. Kendall, A. I., Day, A. A., and Walker, A. W.: *Ibid*, 1914, XV, 433-438 and 451-54.

8. Same Authors: *Ibid*, 1914, XV, 433.

9. Gilbert, George Burton, and Gregg, Harold: *Medical Record*, LXXXVIII, 208.

fine points when we begin to count the individual bacilli. If, for instance, a few years cultivation in the incubator is capable of making a formerly virulent culture absolutely avirulent, as far as systemic production of disease in the guinea pig is concerned, we should expect, at least, some greater differences between the bacilli found in a rapidly progressive case of tuberculosis and a chronic fibroid who has had the disease for a number of years. The study of about 20 cultures isolated from cases of various types and in various stages of tuberculosis by Mr. Kallen and the author revealed that for practical purposes no avirulent human tubercle bacilli were found in the freshly cultivated sputum—1/100,000 of a milligram of the young bacilli about 3 to 6 weeks old, grown on Petroff's media and inoculated from the primary culture always produced systemic tuberculosis in guinea pigs within six weeks in contradistinction to the absence of systemic disease after the injection of 20 milligrams of the old strain of human tubercle bacilli of about five years artificial cultivation on glycerine agar in the incubator.

Absolute conclusions are as yet not justified on the basis of so few observations, since the cultures from 20 cases are a mere beginning. If, however, these experiments are borne out by further work they will guide us greatly in properly considering preventive and therapeutic measures in tuberculosis.

Now let us return to the consideration of the indirect chemotherapeutic agents for tuberculosis. As one example of the harm that can be done by applying a therapeutic agent in tuberculosis about which little is known it seems justified to cite some recent observations made upon the effect of the x-rays in tuberculosis. This agent, which has no action upon the tubercle bacilli, has been recommended a number of times for this purpose and now, thanks to laboratory investigators, has been proven to have a detrimental indirect action. Drs. Murphy and Ellis¹⁰ have shown that white mice, which have been exposed to x-rays, are made markedly more susceptible to bovine tuberculosis than normal animals, and Dr. Morton¹¹ of Boston has shown that the development of tuberculosis by human bacilli in guinea pigs can be reduced from 5 to 7 weeks to 8 to 10

days by means of x-ray exposure. Benzol would probably act in a similar way, although, to my knowledge, this has not been investigated. In order to study the indirect action of drugs on tuberculosis, it is, of course, easily seen that certain standards are necessary. It is conceivable that a drug may have a direct action upon the tubercle bacillus, for instance, inhibiting its development, and still have a detrimental effect upon the body, expressing itself in its action upon the tubercle. It is a known clinical fact that potassium iodide tends to hasten the breaking down of tubercles, yet Hirsch¹² was unable to corroborate the findings of Cantacuzene in this line in experimental animals. Here again we face not a simple problem, but a problem with at least two phases which are directly applicable to human tuberculosis. The initial tubercle differs in many respects from the second tubercle formed at a later period by the inoculation of tubercle bacilli. Thus was early noted by Koch¹³ that, "If a normal guinea pig is inoculated with tubercle bacilli, the point of inoculation very soon closes. After 10 to 14 days there appears at this site a small hard nodule which finally ulcerates. This shows no tendency to heal and remains so until the death of the animal. If, however, an already tuberculous guinea pig is similarly inoculated, while the point of inoculation also closes, no indurated nodule appears. Instead, a necrotic process of the skin sets in after the second day, which finally terminates in the casting off of the slough and the formation of a flat ulceration that heals rapidly." Koch also noted that dead tubercle bacilli can produce tubercles identical with the living bacilli except that they form no metastases.

Vaughn¹⁴ explains this changed reaction to the second inoculation by the increased presence of a lytic agent in the tuberculous animals which is capable of forming the toxic products from the bacilli. If, therefore, a therapeutic agent is to be considered for its action upon the tubercle, these two phases of the tubercle formation deserve consideration, the former being more like that found in children, while the latter would simulate that found in the adult. Since dead tubercle bacilli can not multiply and still possess

12. Hirsch, Edwin Frederick: *Jour. Infect. Dis.*, 1914, XV, 487-500.

13. Koch, Robert: *Gesammelte Werke*, I.

14. Vaughn, Victor C.: *Protein Split Products in Relation to Immunity and Disease*, 1913.

10. Murphy, James B., and Ellis, A. W. M.: *Jour. Exp. Med.*, 1914, XX, 397.

11. Morton, John J.: *Ibid.*, 1916, XXIV, 419-27.

all the powers of forming tubercles without the uncertain elements involved in using living bacilli, definite known amounts of dead tubercle bacilli were injected intracutaneously into the abdomen of guinea pigs where they could be frequently observed and studied, and found to always produce definite sized tubercles which, in the majority of cases, did not rupture, but gradually disappeared. If, however, guinea pigs were likewise intracutaneously injected with the same amount of dead bacilli after previous inoculations of about 2 to 3 weeks with dead or living bacilli, these tubercles would rupture anywhere within from 5 to 10 days, leaving a small ulcer which would gradually heal. In an animal in a poor state of nourishment the time required for rupture would be increased markedly. Splenic tissue and aleuronat resembled tubercle bacilli in rupturing after previous injection of the homologous substance, but edestin and coagulated egg white did not reveal this reaction. These preliminary standardizing experiments have been carried out in the sanitarium laboratories and will now be applied to the study of the effect of therapeutic agents upon the tubercle, a study which heretofore proved very unsatisfactory.

It is generally conceded that the breaking down of the tubercle leads to the dissemination of the disease, and if such occurs into a blood vessel may lead to a miliary tuberculosis which, of course, we all know is to be avoided if possible. This brings into consideration another method of applying an indirect therapeutic agent. The excellent studies of Jobling and Peterson^{15, 16, 17} have awakened us to the tremendous importance of the ferments and antiferments of the animal body in hastening or preventing the dissolution of the dead tissues. The split products of the tissues are dangerous to the organism. Jobling and Peterson found that certain unsaturated fatty radicles have a powerful anti-fermentative action. Is it not possible that the rationale of the old cod liver oil treatment, which was given on an empirical basis, acted mainly upon the ferments and is it not also possible that we so zealously watch the weight of our patients for the same reason? In preliminary experiments in which we tried to set some definite standards for the purpose of studying the effects of drugs upon the ferments

and anti-ferments of the tubercle we unfortunately, after a great deal of work, found that the method used was not sufficiently accurate for this purpose.

It is well-known that as an indirect therapeutic measure artificial pneumothorax in selected cases of phthisis is of tremendous value in decreasing the spread of the lesion in the involved lung, in stopping hemorrhage in cavity cases and collapsing these cavities, and indirectly preventing absorption of toxic material, thus affording a better opportunity for recovering the lost resistance occasioned by the prolonged duration of the disease and frequently swaying the pendulum on the side of complete recovery. With these facts in mind it was thought advisable to consider the value of artificial pneumoperitoneum upon tuberculous peritonitis. It is conceded among surgeons that the mere opening of the abdomen in a case of tuberculous peritonitis frequently has a favorable action upon the progress of the disease and often recoveries are secured. The *modus operandi* of this has been explained in a number of ways; i. e., stimulating the flow of lymph, the formation of antibodies, the presence of the light, etc. On the basis of this fact a number of investigators have tried the injection of air and nitrogen, thus producing an artificial pneumoperitoneum and, though reporting on isolated cases, have seen favorable results.

For instance Brückner¹⁸ suggests that the gas acts beneficially by preventing adhesions by keeping the peritoneal surfaces apart, aids absorption in cases of ascites, and stimulates the formation of antibodies.

In view of these favorable results reported it was thought advisable to study the subject in experimental animals where conditions could be better controlled. This work, which was carried on by Dr. R. G. Peschman and myself in rats, resulted in the following findings: In order to gauge the length of time of persistence of the air in the peritoneal cavity the absorption was controlled by the use of the x-ray. That constant conditions might be present in all cases, dead tubercle bacilli were used so that the uncertain growth factor would not conflict with the results. Even after prolonged presence of air introduced by frequent injections into the peritoneal cavity there was noted no decrease in the time of ab-

15. Jobling, James W., and Peterson, William: Jour. of Exp. Med., 1914, XIX, 239-50.

16. Same Authors: Ibid, 1914, XIX, 251-8.

17. Same Authors: Ibid, 1914, XIX, 383-97.

18. Brückner, G.: Berl. Klin. Wochschr., LI, January, 1914, p. 103-4.

sorption, which occurred in from 3 to 4 days, thus differing from the findings in pneumothorax. This was found to be true in both normal animals and those injected intraperitoneally with tubercle bacilli. The injection of air did not in any way prevent adhesions, since in the animal not treated the bacilli were always found in a single well walled area, while in the case of those receiving the air they were generally distributed in the peritoneal cavity and especially conspicuous toward the region of the diaphragm. The question, therefore, arises whether the introduction of gases into the peritoneal cavity is advisable in tuberculous peritonitis, especially the dry form.

Before concluding, I wish to cite to you another interesting laboratory investigation that is being carried out at the Municipal Sanitariums, but which concerns mainly the tuberculous host and which may eventually lead us to the means of employing an indirect therapeutic agent.

Fishberg¹⁹ in his new book on Pulmonary Tuberculosis states that, "Despite the external appearance of anemia frequently seen in many phthisical patients in all stages of the disease—which has given rise to the expression Great White Plague—no changes in the cytology of the blood characteristic of the disease have been found. In fact, it is noteworthy that many patients who look pale show an almost normal blood picture."

So far as has been determined the pallor found in phthisis is not explicable on the basis of any changes in the cytology of the blood. There still remain, however, two undetermined changes in the body which may explain this condition; i. e., a diminution in blood volume or a normal blood volume with a peripheral anemia and an increase in the amount of blood in the internal organs. Until within the past year the methods available for determining blood volume in human beings was not applicable to a large number of patients. Keith, Rountree and Geraghty²⁰ have now placed at our disposal a method applicable for this purpose carried out without any harm or inconvenience to the patient. The method consists of injecting intravenously a certain known amount of a non-toxic, slowly absorbable dye, vital red (disodium disulphonaphthol azotetramethyl triphenyl methane), which remains in the

plasma long enough for thorough mixing, and the determination of its concentration in the plasma colorimetrically by comparison with a suitable standard mixture of dye and serum. In co-operation with Drs. R. T. Rodaway and J. P. Cleary investigations have been begun to determine whether there is a change in blood volume or plasma volume during the various stages of pulmonary tuberculosis and, if possible, to apply the knowledge thus obtained for therapeutic purposes if indicated. Keith, Rowntree and Geraghty found that normal individuals have approximately 50 c.c. of plasma per kilogram of body weight, the extremes being 42 to 56 c.c., while there is about 85 c.c. of blood per kilogram, the extremes being 78 and 97 c.c. per kilogram. We have thus far examined nine cases of pulmonary tuberculosis (all ambulant or cottage cases) by this method, and have found two of them with a low plasma volume—33.1 c.c. and 33.3 c.c.—and a low total blood volume—58.9 c.c. and 66.6 c.c., respectively, per kilogram of body weight. Of course, here again we are just in the preliminary stage of the work and are not justified in drawing any definite conclusions, but from these experiments it may be expected that a decreased blood volume will probably be found in at least a number of the cases of pulmonary tuberculosis. Whether this is explicable on the basis of the tuberculosis or some other condition remains to be seen.

THE CLINICAL APPLICATION OF THESE PROBLEMS.

A DISCUSSION.

W. A. GEKLER, M. D.,

Municipal Tuberculosis Sanitarium of the City of Chicago.

In working out a therapy for tuberculosis, whether it be chemical, immunological, surgical or physical, we must first have a thorough understanding as to what we are treating. In other words, we must be able to pick out the different types of pulmonary tuberculosis that exist, and know them well enough to know what sort of therapy could be applied with any hope of success. Our clinical studies and observations have shown us that there are a number of definite types of tuberculosis encountered fairly frequently, and these types are different enough from one another to require different means of treatment.

19. Fishberg, Maurice: Pulmonary Tuberculosis, 1916, 224.

20. Keith, N. M., Rountree, L. C., and Geraghty, J. T.: Arch. of Int. Med., 1915, XVI, 547-76.

The first type is analogous in many ways with the tuberculosis of the guinea pig. I refer here to the primary tuberculosis in children. X-ray study of these children has shown that there may or may not be a demonstrable lung lesion, but when the infection has taken place through the respiratory tract there are diseased bronchial glands which can be definitely shown on the x-ray plate. The tuberculosis follows Cornet's Law of Localization, which postulates that, regardless of the size of the lesion produced at the point of inoculation, the regional lymph glands are invariably involved, and this involvement takes place very shortly after infection. The same thing, of course, holds good for the human animal as well as for the guinea pig. In this stage of the disease a *therapia magna sterilisans* could be used, and would prove of enormous value.

Doctor Corper has further shown that tubercle bacilli will autolyze in the test tube, and that this autolysis takes place rather slowly when they die gradually, and more rapidly when the bacilli are killed by some antiseptic agent. The application of this fact in the therapy of tuberculosis of human beings, of necessity, limits the *therapia magna sterilisans* to those cases of tuberculosis in which the number of bacilli is small. If all the bacilli in the body of an advanced case of tuberculosis were to be killed at once, there would be so much toxin liberated by the process of autolysis that the patient would be killed just as one may kill a tuberculous animal with a large dose of tuberculin. A *therapia magna sterilisans* then would be applicable probably only in children, or in those patients who have exceedingly small pulmonary lesions and a moderate amount of regional lymph gland involvement.

Von Behring has said that "phthisis pulmonalis of the adult is the last verse of a song which is begun in the cradle." Clinically we find that the phthisis pulmonalis of adults is caused either by a reinfection of an already infected individual by inhaling organisms from his surroundings, as in the case of one who cares for a far advanced, careless consumptive, or is caused by the reinfection from within, due to the rupture of a tuberculous lymph gland into the bronchus, and the subsequent flooding of one or more parts of the lung with caseous tuberculous material out of this gland. Our investigations at the present time have not progressed to a point where we are able

to say definitely in what percentage of cases the reinfection takes place from within, or from without, but such evidence as we have gathered seems to indicate that the large majority of the patients who have pulmonary consumption are reinfected from within. As mentioned before, the treatment of such cases with a *therapia magna sterilisans* would be absolutely dangerous and is out of the question, but possibly an agent which would inhibit the growth of these bacteria might be of some value. It is to be hoped that the laboratory workers will develop something along this line which may be of help to the clinician in his work. There are cases of cavernous phthisis, which, when they are unilateral, often give good results with pneumothorax therapy. I might say here that pulmonary surgery is still in the process of development, and it is possible that a certain class of cases may be quite materially helped by different forms of surgical treatment.

The ferments which exist in the tubercle bacillus are unquestionably of some importance. We are not able to say, at the present time, in just how far they are responsible for the breaking down of the body tissues and the subsequent wasting away of the tuberculous individual, but it is fairly certain that the breaking down of the tuberculous nodule is dependent, to an extent at least, upon these ferments. Possibly an anti-fermentative agent would be of some help in those cases whose involvement is so great that a *therapia magna sterilisans* could not be employed.

Doctor Corper's work on the virulence of the tubercle bacilli discharged by different individuals is of great importance in our campaign against tuberculosis. It was thought at one time that the patients who had cavities of long standing in their chests expectorated bacilli which were either dead or of such low virulence that their infective power was almost nil. It seems, however, that these organisms are equally virulent, regardless of how long the individual who is discharging them has been sick.

Knowing the great susceptibility of infants and children to tuberculosis, it is very clear that equal care must be taken in the disposal of the sputum of the far advanced case with that of the earlier case who has been sick a shorter period of time. The evidence seems to be accumulating to prove that the virulence of the organisms is of little moment, and that the size of the dose re-

ceived, either by an animal or by the human being, is of greater importance than the virulence, and determines, to an extent at least, the severity of the tuberculosis; this holds good in the case of primary tuberculosis of children, as well as the reinfection from within or from without.

The production of pneumoperitoneum for the treatment of tuberculosis peritonitis seems, according to Dr. Peschman's results, not to be of much value. It is difficult to draw a comparison between pneumoperitoneum and pneumothorax, because pneumothorax is based upon entirely different principles, and these principles are not applicable to tuberculosis of the peritoneum. It may very easily be true that pneumoperitoneum may result in the spreading of the disease, rather than in any therapeutic benefit.

THE INFLUENCE OF MIXED AND SECONDARY INFECTION UPON PULMONARY TUBERCULOSIS IN MAN.*

R. T. PETTIT, M. D.,

OTTAWA, ILLINOIS.

In 1882 Robert Koch discovered the tubercle bacillus and demonstrated conclusively that it was the cause of pulmonary tuberculosis. Within recent years we have learned, by post mortem examinations and tuberculin tests, that almost every one that reaches adult life is at some time or other infected by the tubercle bacillus.

Why is it that approximately ninety per cent of our population recovers spontaneously from this tubercular infection and only ten per cent becomes actively and recognizably sick with tuberculosis? There may be two explanations: First, some individuals with very low resistance, may have an overwhelming infection by virulent tubercle bacilli; or, secondly, the tuberculous infection may become complicated by the invasion of other bacteria. Undoubtedly both of these conditions may occur but the degree of importance of both the primary and secondary infection in pulmonary tuberculosis is still a much disputed question. Some investigators consider the secondary invaders, more often streptococci, pneumococci, and staphylococci, of little or no importance, while other authors consider the tubercle bacillus of little importance in the pro-

duction of active pulmonary tuberculosis and assign the major rôle to the secondary invaders. Between these two extremes are those who consider both the primary and secondary infection of importance but in varying degree.

This difference of opinion among investigators in this field is due largely to the inaccuracy and inadequacy of the methods used in the investigation of the problem. Clinical study gives no definite information; all the symptoms usually ascribed to mixed and secondary infection, such as high and irregular fever, chills, sweats, expectoration, emaciation, and peculiar skin odor, have been seen in cases showing only tubercle bacilli in the sputum and no secondary organisms on post mortem examination. On the other hand, cases showing pronounced cavities with many secondary organisms in the sputum show no fever whatever, but feel perfectly well.

Sputum examination is also unsatisfactory. Streptococci, pneumococci, staphylococci, the organisms most commonly considered secondary invaders in pulmonary tuberculosis, are found in the normal mouth, pharynx, and trachea, and when found in conjunction with tubercle bacilli in sputum it is impossible to separate those coming from the mouth or pharynx from those coming from the lung. In order to overcome this difficulty some authors have washed the sputum in a varying number of changes of sterile water, but even then it is impossible to separate the mouth bacteria from the organisms coming from the deeper portions of the respiratory tract.

Post mortem examination of the lung is far from convincing because pyogenic bacteria may invade the lung tissue as a terminal or agonal infection or even after death.

The results obtained by animal experiments are contradictory. Prudden found that inoculation of tubercle bacilli into rabbits produced tuberculosis but seldom caused cavity formation, but the intratracheal injection of streptococci into tuberculous rabbits caused a decided cavity formation. Marmorek, however, has been able to produce cavities by the use of tubercle bacilli alone if used together with large doses of tuberculin.

The leucocyte count is of some value but at best is an indirect method. While a certain grade of leucocytosis is perhaps indicative of the presence of mixed infection (the leucocyte count in

*Read at the sixty-sixth annual meeting of the Illinois State Medical Society at Champaign, May 17, 1916.

uncomplicated tuberculosis is usually normal or low), the limitation of the method in the study of secondary infection in tuberculosis is that the leucocytosis gives no information concerning the location or character of the secondary invading organism.

The opsonic index in the hands of various workers has not led to uniform conclusions. At best, it is a very inaccurate method, and, in my hands, at least, has been of no value.

Another method that has been used in the study of this problem is the blood culture method. It is generally conceded that the blood or tissues of the body not in contact with the outside air under normal conditions is sterile and the finding of bacteria in the blood is of definite pathological significance. Therefore, blood cultures have been repeatedly used to determine the presence or absence of secondary infection in tuberculosis and as in the case of the other methods cited, direct contradictory results have been obtained, but in this instance, I believe the confusion in results is due to variations in the technic of applying the method rather than in the method itself. At any rate, it is obvious that the evidence furnished by positive results far outweighs that furnished by the negative.

Blood cultures made after death are not convincing because terminal, agonal, or post mortem invasion are such important factors. Blood cultures during life in the hands of early workers were of little value because sufficient care in prevention of contamination from the skin and air was not used. Later workers, using more careful technic, drawing a larger volume of blood directly from a vein under aseptic conditions, have been uniformly unsuccessful in recovering streptococci or pneumococci from the blood. Twenty-four authors using venous punctures in the examination of 1,151 cases obtained only 31 positive blood cultures for streptococci and pneumococci, or 2.7 per cent. From these results Jockman, Reiche, Benohr and others concluded that if mixed infection is responsible for chills, fever, sweats, emaciation, etc., in pulmonary tuberculosis, their action is due to soluble toxins thrown into the circulation from an area of localized infection rather than due to a general bacteremia. The results of workers in this field using the blood culture method were uniformly negative as above shown, and their conclusions

seemed justified, but a historical review of blood culture studies in other diseases shows that with the development of more careful bacteriological methods there is a marked increase in the percentage of positive blood cultures, and at the present time instead of considering typhoid or pneumonia as infections confined strictly to the lung or intestine, we now believe them to be general bacteremic infections as well as localized infections of the lung or intestine.

Because of the possibility that the negative results of previous workers may have been due to inefficient technic, and because of the conclusive character of the evidence furnished by positive blood cultures obtained during life, I decided to use this method of attack in the study of mixed and secondary infection in pulmonary tuberculosis.

This work was started in 1910, and in November, 1911,¹ the results of the examination of 130 cases were published in the *Journal of Infectious Diseases*. It was decided a priori that the most efficient technic would be one in which, first skin and air contamination were eliminated as nearly as possible, and, secondly—the organisms were cultivated in an environment as little different from the conditions under which they had been living in the human body as possible. The technic used at that time is given in detail in the report above cited, but briefly was as follows:

The blood 15-20 cc. was aspirated directly from an arm vein by means of a glass aspirating bulb of 25-cc. capacity. Cultures were made in agar and broth and in many instances a small portion of the undiluted blood was cultivated in the sterile aspirator or a sterile test tube. The blood agar plates and broth cultures were examined daily and in the case of positive results transfers and subcultures were made on blood agar, plain agar, potato, gelatin, milk, broth, serum inulin water, or serum inulin agar and cultural and microscopical study was carried out in each instance until the identity of the fully isolated organism was established. In all instances the organisms were streptococci, pneumococci, or staphylococci. All organisms showing the usual characteristics of the staphylococcus were discarded as presumably representing skin contamination, hence the results recorded as

1. Jour. Inf. Dis., 1911, IX, 237-250.

actual positive blood cultures have to do only with the streptococci and pneumococci. On this basis alone, of 130 cases examined, streptococci or pneumococci were isolated from the blood stream in 60, or 46 per cent. Streptococci were found in 36 cases and pneumococci in 24 cases; 58 of the 60 positive blood cultures were obtained from advanced and far advanced cases. The percentage of positive cases was greater in the far advanced than in the advanced cases; hence, as the disease progressed, the possibilities of obtaining a positive blood culture increased. The percentage of positive blood cultures obtained in cases with temperature below 100 degrees F. was 34 per cent, while the percentage of positive blood cultures obtained in cases with temperature above 100 degrees F. was 58 per cent—almost twice as many in the fever cases. From these data based upon the examination of a comparatively large number of cases, even though the results contrasted sharply with the results of previous workers, I was forced to the conclusion that not only are true secondary invading organisms of frequent occurrence in pulmonary tuberculosis but these organisms, found in the blood stream with increasing frequency as the disease progresses, are of definite pathological significance.

In 1913, in a report to the National Association for the Study and Prevention of Tuberculosis, Dr. Lawrason Brown and Mr. S. A. Petroff, of the Adirondack Cottage Sanatorium, Saranac Lake, New York, using a technic similar to my own, fully confirmed my results by a study of 157 cases. They found organisms present in the blood of 9 per cent of the incipient cases examined, in 24 per cent of the moderately advanced cases, and in 61 per cent of the far advanced cases. In other words, we both found higher percentages in the active, than in the quiescent cases, and the further advanced the disease, the higher the percentage of positive blood cultures.

More recently Rosenow has shown the importance of oxygen in the growth of streptococci and pneumococci, a factor that neither myself nor Dr. Brown took into consideration in our studies of secondary infection in tuberculosis. In their extensive studies on focal infections Rosenow and Billings have demonstrated the importance of oxygen pressure in the growth of these organisms and Rosenow has worked out a blood culture

technic in which this factor is controlled. By this method the hemoglobin—the oxygen carrying element of the blood—is eliminated.

The technic is, briefly, as follows: Fifteen to 20 cc. of blood is aspirated into sufficient sodium citrate solution to prevent clotting. The decalcified blood is then transferred to approximately 200 cc. sterile distilled water. The distilled water dissolves the hemoglobin out of the blood corpuscles. The hemolysed blood is then centrifuged at high speed for 20 to 40 minutes and the hemoglobin containing water is poured off. The sediment is emulsified in approximately 5 cc. of sterile normal salt solution and from this anaerobic and aerobic cultures made in blood agar, dextrose ascites agar, dextrose ascites broth, Loeffler's blood serum and plain agar. Aerobic and anaerobic blood agar plate cultures are also made. The cultures are followed out for two weeks.

Using this method in a variety of conditions, Rosenow has obtained positive cultures by this method when the usual method has failed. Because of the importance of his findings it was decided to check up his method against the method previously used. In order to do this, instead of drawing 20 cc. of blood from the arm vein, 40 to 50 cc. was taken; half of this was planted as usual and half according to Rosenow's method. Eighteen cases were studied. No particular effort was made in the selection of cases, as the purpose of the study was the comparison of blood culture methods rather than the determination of the percentage of positive results. In the eighteen cases studied the method previously employed yielded two positive results, while by Rosenow's method eight positive results were obtained, or, in other words, for the cases studied Rosenow's method was four times as effective. From these results it is reasonable to assume that many of the negative cases reported in my former series were due to inadequacy in technic and that secondary infection is of even greater importance than previously shown.

From these studies the following conclusions, I believe, are warranted:

Practically all cases of active pulmonary tuberculosis are not pure tuberculous infection but primary tuberculosis secondarily complicated by pus producing bacteria. Therefore, in seeking

for new and better methods of treatment, the attack should be directed against these pus-forming bacteria rather than against the tubercle bacillus alone.

DISCUSSION.

Dr. O. W. McMichael, Chicago: The work done by Dr. Pettit is of great interest and of extreme value.

The cause of fever in tuberculosis has been under discussion for so many years that we cannot but be grateful to those patient laboratory workers who by weeks and years of research bring out here and there proven facts which we can fit together to explain the cause of things.

The teaching that fever and cavity formation in tuberculosis are due to mixed infection rests upon two things, first the observation that fever is present during cavity formation, and, second, that in the laboratory examinations of the discharges from pulmonary cavities, pus-forming organisms, as well as tubercle bacilli, are found, and we draw the incorrect conclusion that the pus-forming organisms are responsible for the temperature and the destruction of tissue. The evidence presented by Dr. Pettit seems at first thought to support this view, because he proves to us that pus-forming organisms are found in the blood of a high percentage of febrile cases of tuberculosis.

Suppose, for the sake of study, we take the other side of the question and argue that only after cavity formation or destruction of pulmonary tissue by the tubercle bacillus can mixed infection occur. In support of this view let me call your attention to the increasing percentage of cases in which Dr. Pettit found these organisms in the blood as the disease advanced.

If we hold the view that the tubercle bacillus does not grow upon the surface of the bronchial tubes, but in the adjacent tissues, and finally accumulates in considerable numbers, that some of the bacilli in that mass die, that their soluble proteids are dialyzed, if we may use that expression, then we may argue that we have left behind the tubercle fat in concentration.

We know that tubercle lipid in concentration produces necrosis. We have then that necrotic center beginning the necrosis, the necrosis increasing until the tissue at the weakest point next the bronchus breaks down, the contents of the mass discharged into the bronchus, then tubercle bacilli are found in the sputum and other organisms present in the bronchial secretions find a point of entrance.

Dr. Pettit's work proves to us that mixed infection is present in a high percentage of cases of pulmonary tuberculosis, but we have yet to account for the clinical picture in those cases in which mixed infection cannot be proved to exist.

Dr. Pettit, Sr., closing the discussion:

I am not at all competent to discuss this question from the laboratory side, as I am not a laboratory man. I will say, however, that this work was taken up at my suggestion. At that time there were differ-

ent experimenters trying to recover these organisms of mixed infection from the blood but with indifferent success, and the work done in our laboratory developed that something along this line can be accomplished, as shown by the reports which have been made.

About four or five years ago the subject was regarded as of enough importance, for a committee of the British Anti-Tuberculosis Association to offer a very substantial reward for the best work done along this line. The man who took the prize, was the man who said the organisms could not be recovered. So you see he was mistaken. We are not contending that this has any particular value as the matter now stands, but all we contend is that it is a line of investigation that should be pursued until we definitely determine whether it has any practical value or not. I can only argue this thing from the clinical standpoint. I think we all agree that however much we may differ in our opinion as to the value of tuberculin we agree that it has more value in the so-called surgical forms of tuberculosis than in the pulmonary form. These cases are usually pure tuberculosis. We so regard them, at least, and that is the probable reason why we get better results from tuberculin in our surgical cases than in our pulmonary cases. We have got to be very careful how we make any statement. Any man has to be careful how he makes any statement based upon his personal experience, especially in a subject so complicated as that of tuberculosis, and especially where the number of cases upon which a conclusion must be based must be so large that they are usually beyond the limit of the experience of any one individual, however large his experience may be. But it seems to me, I have observed that in these cases where we have the low grade symptoms which we usually have in these cases, that the results of tuberculin are better than in the more acute cases, the probable reason being that we have other micro-organisms to deal with, and hence our tuberculin is not only not appropriate but is positively contra-indicated. This, however, is a mere hint. We are groping in the dark—we must not be too positive about anything on this question, and I do not want it to be understood that we are drawing any conclusions. Everything is tentative; the work is going on and we propose to prosecute it as far as seems to be profitable.

TUBERCULIN THERAPY

LAWRENCE J. QUILLIN, M. D.,

STREATOR, ILLINOIS.

No treatment in the past thirty years has been received with more enthusiasm or criticism than the treatment of tuberculosis with tuberculin. Upon its introduction by Koch in 1891 he and his followers believed they had discovered a cure

for tuberculosis in all its forms. Although later evidence proved their original contention untrue, accumulated evidence has proved that tuberculin therapy is of value in the treatment of tuberculosis when administered under certain conditions, to suitable cases, and at a proper time.

In 1891 Koch demonstrated the following facts: If a healthy animal is injected with a large quantity of tubercle bacilli the animal apparently does well for from ten to fourteen days, at the end of which time a nodule appears at the site of the injection which ulcerates, breaks down, and persists, finally causing death of the animal. However, if the animal injected be tuberculous a nodule appears upon the second or third day, which breaks down and sloughs off, leaving a shallow ulceration which rapidly heals.

If a healthy animal be injected with a large number of dead tubercle bacilli, suppuration at the site of the injection was the result. However, if the animal injected be tuberculous death occurred in from six to forty-eight hours, with all the symptoms of acute miliary tuberculosis. By injecting the tuberculous animal with small doses of dead tubercle bacilli he was not only able to avoid death but obtained marked improvement in the tubercular condition of the animal. Further experiment showed he was able to produce the same reactions in the tuberculous animal by injecting the cultural fluids in which the bacilli had been grown and filtered off.

The fact the cultural fluids produced the same reaction in the tuberculous animal as the dead bacilli lead to the assumption which was later proven, that the tubercle bacilli produced two kinds of toxin, namely, exotoxin or soluble toxin, excreted into the cultural fluids in which the bacilli have been grown, and an endotoxin or insoluble toxin contained in the bodies of the tubercle bacilli and not liberated except by their disintegration. These facts have led to the production of a great variety of tuberculins, however, they all have for their active principle the protein of the tubercle bacilli. This tubercular protein produces qualitatively always the same reaction whether the cultural fluids be used, the bacilli themselves, or the pure protein extracted from the bacilli. A product containing this protein is a tuberculin, and no substance which does not contain it can be so classified. Any substance which contains tubercular protein is a satisfactory tuberculin, the test of whose

presence is the ability to produce a reaction. Bacteriologically it has been proved that exotoxins are probably products of bacterial metabolism and their distinguishing features are their stability, and the readiness with which they stimulate in the animal organism the production of neutralizing substances called antitoxin. It is important to point out at this time that tuberculin is not an antitoxin, not a neutralizer of the poison produced by the tubercle bacillus, nor a germicide directly killing the tubercle bacillus. Whatever differences of opinion exist regarding the exact mode of the action of tuberculin all observers are agreed upon this much, namely, that tuberculin acts by stimulating the patient, stimulating him to elaborate protective substances, or an inflammatory reaction about the area of the infection. By causing the production of protective substances in the patient's body the patient's tolerance for tubercular toxin is raised, changing him from a condition of hypersensitiveness to tubercular toxin to one of hyposensitiveness.

Before beginning tuberculin treatment the physician should select the patients to be treated with great care, with a sufficient knowledge of the subject to correctly interpret the various reactions that occur upon its administration. The most suitable cases for treatment are those with small localized lesions of infection that are not producing active symptoms, namely, tuberculosis of the lungs, tuberculosis of glands, bone, the eye, and so on. The most striking results of tuberculin treatment are seen in patients in good or, at least fair, general condition, with moderately or far advanced lesions. Many of these patients have reaped a measure of improvement from hygienic-dietetic treatment and then have for months remained stationary. Tuberculin is often just the stimulation required to start them upon a rapid course of improvement. Entirely unsuited for tuberculin treatment are those cases whose reactive powers have been spent in a long fight against the disease; patients who are being overwhelmed by a severe or widespread infection are not suitable cases for treatment. To administer tuberculin to such cases would not only be a catastrophe to the patient but a disappointment to the physician.

The reactions following the administration of tuberculin are manifest by local, focal and general signs and symptoms.

The local reactions are manifest by pain, soreness, redness and swelling at the site of the injection. As a guide to dosage I can not say that the local reactions are of value except in those cases where reactions do occur. When local reactions do occur I am of the opinion that they should be considered as danger signals that the dose has been too large. Providing the injection of tuberculin has been given under strict aseptic conditions, and care has been exercised to make the injection subcutaneously and not into the skin, and the dosage has been correct, I have not observed many local reactions.

The focal reactions are those occurring at the site of the lesion and are of an inflammatory nature. When the lesion is situated externally the reactions are easily appreciated, but when the lesion is in an internal organ severe reactions may occur undetected. Koch's description of the focal reactions in lupus gives a good picture of the changes. A few hours after the injection the diseased skin becomes red and swollen. As the temperature rises the redness and swelling increase and may reach such a marked degree that the tissues become brownish-red and necrotic. With the fall of temperature the swelling and redness decrease and may entirely disappear in a few days. The lupus areas are covered with crusts, which dry and fall off, leaving sometimes after a single injection a smooth pink scar. It is remarkable how absolutely specific is the selection of tuberculin for tuberculous tissue, none of the surrounding tissue or old scar showing the least evidence of reaction. In the case of pulmonary tuberculosis the reaction is evidenced by increased pain, cough and expectoration, and changes in physical signs previously noted. In cases of tuberculosis of bones and joints increased redness, swelling, heat and pain, with more evident limitation of motion and the appearance or increase of crepitus.

The constitutional or general reactions are manifold and varied. They consist of increased temperature and pulse rate, together with one or more of the following: chilliness, malaise, headache, general aching pains through the body, loss of appetite, nausea and vomiting. Of all the reactions of tuberculin, elevation of temperature is the most helpful, and of the greatest importance. It is the only reaction we are able to determine with certainty, and for this reason

I place it first in importance among the reactions of tuberculin. The elevation of temperature in the tubercular individual following the administration of tuberculin displays several distinctive characteristics which have been noted after many thousand tuberculin reactions. These facts are as follows: The elevation of temperature following the administration of tuberculin is dependent upon the severity of the tubercular condition in the individual and the amount of tolerance which the individual has against the tubercular toxin. The elevation is dependent upon the quantity of tuberculin injected. From the observations made it has been found that the elevation of temperature in the tubercular individual comes on in from sixteen to eighteen hours after the administration. Elevations of temperature coming on before this period are not considered as being due to tuberculin injected. They are ascribed as being due to: 1. Faulty technique such as improperly sterilized instruments and injecting material. 2. A peculiar susceptibility which some individuals manifest to the diluent fluid, phenol. Those individuals who are susceptible to phenol have an elevation of temperature in from eight to ten hours after the injection associated with a diffuse rash consisting of miliaria. 3. Elevation of temperature from auto-inoculation due to changes about the site of the lesion. 4. Elevation of temperature due to the numerous changes which the tubercular individual is subject to, such as over-exertion, fright, and intercurrent infections such as tonsillitis and influenza.

The physician, having acquainted himself with the various reactions following the administration of tuberculin and the object of the treatment, should proceed in the following manner: The patient should be acquainted with the object of the treatment and instructed with the necessity of keeping an accurate record of all symptoms which follow the injections. He must be taught how to take his temperature and instructed to keep a record of the same. Unfortunately the average patient has not the means or no provision has been made for the institutional treatment of these cases. I believe if all cases treated with tuberculin could be placed in an institution where they could be closely observed by those familiar with this class of work the results would be much more uniform and encouraging. How-

ever, by carefully instructing the patients the treatment can be successfully carried on in the home.

The actual treatment of cases is carried out in the following manner: Koch's Old Tuberculin, prepared by Lucius and Bruning, is used to make the various dilutions, and each dilution is 1/10 the strength of the former. An 0.5 per cent solution of phenol in normal salt solution is used as the diluent fluid. Four dilutions are made as follows: One part of pure tuberculin and nine parts of 0.5 per cent. solution of phenol makes dilution No. 1. One part of dilution No. 1 and nine parts of same solution of phenol makes dilution No. 2. One part of dilution No. 2 and nine parts of same solution of phenol makes dilution No. 3. One part of dilution No. 3 and nine parts of same solution of phenol makes dilution No. 4. Dilution No. 1 keeps for about two months. Dilution No. 2 may be kept thirty days; dilution No. 3, two weeks, and dilution No. 4, for a week. The dilutions must be kept in a cool place. At the expiration of the time stated the various dilutions must be renewed.

All utensils used in the preparation of the various dilutions are thoroughly sterilized before being used. The dilutions are kept in glass-stoppered bottles and a Luer syringe is used in making the injections.

The injections are given either in the arm or the back, and are preferably given between 3 and 5 P. M. Following the injections the temperature is taken every two hours for 48 hours, as it is the only accurate method there is to determine the nature of the reaction. Providing the dose of tuberculin injected does not cause an elevation of temperature above one degree of what is considered normal for the patient the dose is increased 1 minim at weekly intervals. Should the dose injected cause a reaction above one degree, the dose is decreased one minim at the next weekly injection, and is not given unless all symptoms of the previous reaction have subsided. The dose of tuberculin is not fixed and must be determined for each and every individual. In beginning treatment the patient is started upon a dose of 5 minims of dilution No. 3, and the weekly dose increased or diminished according to the reaction as stated above. When the weekly dose has reached 20 minims of dilution No. 3, begin with 3 minims of dilution No. 2, increasing the weekly dose until 20 minims

are reached. Then begin with 3 minims of dilution No. 1, and increase the weekly dose 1 minim until a 20 minim dose is reached. At the end of this time the patient should be cured and immune to tubercular toxins, or sufficient improvement gained to warrant the continuance of the treatment.

The additional treatment of these cases consists of the most favorable hygienic surroundings and of physical and mental rest as much as it is possible to obtain.

204 E. Main street.

THE THERAPEUTIC VALUE OF THE U. S. P. TINCTURE OF IODINE IN THE TREATMENT OF TUBERCULOSIS AND OTHER INFECTIOUS DISEASES WHEN PROPERLY ADMINISTERED AND GIVEN IN PROGRESSIVELY INCREASING DOSES.*

JOHN RITTER, M. D.

CHICAGO.

Iodine is described in the National Dispensatory as a gastrointestinal irritant of intense severity, said to produce vomiting, diarrhea and collapse, still death has rarely occurred. Has death directly attributable to the ingestion of iodine ever occurred? It is further stated there that if death does not result from acute gastroenteritis, secondary fatty degeneration of various organs may take place. That iodine is given internally to a limited extent in the form of the tincture in 2 or 3 minim doses. Antidotes are also mentioned, such as starch mixed with water, white of egg, milk, bicarbonate of soda, etc., and the stomach should be emptied by means of the stomach tube and lavage, or by means of emetics to get thoroughly rid of the poison and opium or morphin administered for the relief of pain.

In a recent state examination for licentiate in medicine, appeared, among others, the following question: "What is the Chemical Antidote for Iodine?" And it may be assumed that the correct answer should be moist starch. But why iodine, why starch? Is iodine really such a toxic element that the physician must be impressed with this importance and be able, if sud-

*Read at the twelfth annual meeting of the National Association for the study and prevention of tuberculosis, Washington, D. C., May 12, 1916.



Fig. 1. Roentgenogram No. 1—Taken November 18, 1915, before treatment was instituted.

denly called in a given case of iodine ingestion, taken inadvertently or otherwise, to have the name of a proper antidote readily at his tongue's end? Is iodine at all toxic? Tincture of iodine U. S. P. contains 7 per cent of pure iodine, still the administration of 60 to 100 drops and more three times a day can be maintained almost indefinitely and without any untoward results.

A number of years ago Dr. A. B., then a very prominent physician in Chicago and who had a most lucrative practice, chiefly among a certain class of unfortunates, located temporarily at Hot Springs, Arkansas. Reporting to the medical profession, on his return, his observation on the use of iodide of potassium in chronic specific disorders given in connection with the warm baths, he stated that in a single day he had often administered 1,000 grains, or more than 2 ounces. This was made possible, in that, simultaneously with the administration of the salt, under the condition of the ingestion of large quantities of warm water and of frequent hot baths, the iodid was rapidly and completely eliminated from the economy, so that tissue dis-

turbance and cell irritation were impossible. In consulting the literature on this subject, we will find that iodine in the form of an alcoholic solution or tincture, as well as all the various salts of iodine, have repeatedly been administered in extremely large doses by many internists, chiefly by French enthusiasts, but this was generally only spasmodically and never found great favor.

Dr. L. Boudreau of Bordeaux, France, who has given iodine very systematically for more than 10 years in pulmonary and other forms of tuberculosis, pushing the remedy to its tolerance, in writing about the use of iodine in the treatment of major infections recommends its systematic and extensive trial. He says:

It is indicated wherever there is infection. Iodine is a natural component of the body, does not accumulate, is rapidly eliminated, is both microbicidal and antitoxic; a tonic to the human organism and vital functions; stimulates the production of leucocytes, produces hyperleucytosis, and increased functioning of the glands, especially the ductless. Indicated wherever fever develops, in all inflammatory condition, in septicemia, in typhoid and typhus, in puerperal fever, in meningitis, measles, scarlet fever, whooping cough, pneumonia, etc. The internal treatment with iodine



Fig. 2. Roentgenogram No. 2—Taken January 1, 1916, after 43 days of Iodine Medication.

aids, not only in throwing off infection, reducing contagiousness, but wards off all complications.

He recommends in the treatment of diseases peculiar to children, especially in acute infections, the rapidly increasing small dose method, day and night. In whooping cough in children at about the age of 7, 60 drops are given during the 24 hours, and children at the age of 3 can take from 40 to 50 drops without apparent harm. In tuberculosis, the good effect of the administration of iodine in the treatment is due to the increasing of the leucocytes, especially the



Fig. 3. Roentgenogram No. 3—Taken March 26, 1916, after 129 consecutive days of Tincture of Iodine ingestion.

mononuclears, and to the augmentation of the phagocytic activity. He has usually administered it in the accustomed beverages of his clientele, supposedly wine or beer. He has given the French Tincture of Iodine, which is a 12 per cent solution of pure iodine in 90 per cent alcohol, in large doses as high as 100 drops three times a day extending over long periods of time.

Having given iodine in the form of the U. S. P. Tincture, and which, by the way, is only a 7 per cent solution as compared with the French over a period of more than 2 years in progress-

ively increasing dosage, I am now fully convinced of its decidedly beneficial and inhibitive effect. Iodine may be administered with most favorable results, in all diseases due to the action of bacteria, even in small doses it possesses highly bactericidal properties. In cases of pus formation with a tendency to absorption, for the removal of an inflammatory exudate, in acute and chronic pleurisy, tuberculous peritonitis, both ante and post operative, in pulmonary tuberculosis at any stage, in chronic fibroid phthisis, in glandular tuberculosis, in unresolved pneumonia as well as in the acute stage, in erysipelatos inflammation, in multiple abscesses, in osteomyelitis, etc.

A case history fully checked up by the periodic taking of roentgenograms during the course of the iodine administration may illustrate the point:

Master Phillip, Mc. D., aged 4 years, on July 3, 1915, while at play accidentally swallowed an apricot stone which was lodged in the upper portion of the esophagus where it remained for more than a week. The lad began to fail, to lose flesh fast, not being able to take food. Seven days after, July 10, the boy was anesthetized and an attempt made to either withdraw the stone from above or push it down into the stomach and not succeeding, the surgeon made an incision over the left upper chest near the sternal end of the clavicle and by means of his index finger in the wound attempted to dislodge the obstruction. By these various maneuvers the stone was finally moved from its moorings and passed through the bowel the following day. Seven days after, July 17, a left sided pneumonia developed, pursuing a natural uneventful course when in the following week suddenly the opposite lung became involved causing the parents much concern. From this time on, that was in the latter part of July until the latter part of November, the child showed all the symptoms of a profound pulmonary right sided involvement. I first saw the child at this time and found it to be very pale, emaciated, with a high temperature and very rapid pulse, a continuous unproductive cough, in fact, a very sick child and these conditions had now existed with more or less severity for nearly four months. Examination revealed a distinct bulging of the right lower chest accompanied by more or less moist râles on deep inspiration, increased bronchial breath sounds and a distinct high pitched percussion note over the right upper. Fermitus could not be elicited as the child could not be induced to talk. Sputum secured for examination by forced cough showed the ordinary inflammatory exudate, some pneumococci, no tubercle bacilli. As a possible empyema was suspected, though doubtful, a roentgenogram was secured on Nov. 18, 1915, which, as you will see from the picture (Roentgenogram No. 1)

shows a distinct infiltration of the whole right lung with a comparatively clear left. The child after the first examination was placed on tincture of iodine in 20 drop doses three times a day and a perceptible improvement in the boy's condition was soon noticeable and so on January 1, 1916, a second roentgen picture was taken for comparison (Roentgenogram No. 2), this, after an interval of 43 days (between the two). This second picture showed a decided clearing up of the shadow and the intensive iodine treatment was continued until March 26 when a third picture was taken (Roentgenogram No. 3) and this showed that the entire right lung was clear and again normal when all further medication was suspended. Repeated physical examinations during all this time revealed a gradual and steady improvement in the lung condition. This child of $4\frac{1}{2}$ years of age received during this period, that is, from November 18, 1915, to March 26, 1916, more than 129 consecutive days, approximately a teaspoonful of U. S. P. Tincture of Iodine daily.

It may be argued, that pneumonia is a self-limited disease, that most cases will clear up without and in spite of treatment, nevertheless we all know and we all teach that a pneumonia which does not clear up in from six or at the longest in eight weeks is, in all probability, a tuberculous affair. If the pulmonary tissue, the alveoli, bronchiols and tubes for long periods of time, are constantly bathed in this inflammatory material, accompanied by high fever and rapid pulse and the production and absorption of toxic products, irreparable damage to the pulmonary parenchyma cannot be long avoided. If the giving of tincture of iodine in intensive medication has not assisted in clearing up the lung conditions during the treatment of 129 days, what has done it?

When I first saw the child 124 days after the onset of the pneumonia, I beheld a very sick youngster and the very first thought that came to my mind after physical examination was that upon this boy's diseased and damaged pneumonic lung, a tuberculous process had been engrafted.

Now, for some time I have administered the U. S. P. Tincture of Iodine in progressively increasing doses in the various conditions of tuberculosis that came to my attention. In a number of cases of pleurisy with effusion, when the effusion was small and no attempt was made at aspirating, the ingestion of iodine has invariably been followed by amelioration of all symptoms of distress. In a case of tuberculous peritonitis the internal use of iodine was continued for almost a year after the operation, the patient, a farmer's

wife, gaining more than 30 pounds in weight. I have administered tincture of iodine in tuberculosis of the mediastinal glands, in bone and joint tuberculosis, in tuberculous sinuses, in pulmonary tuberculosis of all and any stage and am much impressed with its helpful, serviceable and yet harmless action when properly and intensively administered.

Incidentally, I may state that my attention was only recently called to a most interesting case reported in the literature. A physician attending a patient who was suffering from facial erysipelas, prescribed tincture of ferric chloride to be administered in 30-drop doses three or four times a day and, calling on his client a few days later, was surprised to find him so much improved. The patient, in the course of the conversation, remarked that the medicine was all right but that he found it so strong he could scarcely take it. The physician examined the vial and found that tincture of iodine had been dispensed in place of the ferric tincture; however, he was so much impressed with the rapid results that in the next case of erysipelas which came under his care he resorted to the iodine medication at once and was again agreeably surprised by its prompt effect. I can attest to the value of iodine in the treatment of this disorder, having given it in three cases that came under my service recently with most gratifying results, but here again you may say that erysipelas is a self-limited disease, and while it must be admitted, yet the rapidity with which the inflammation subsides, the rapid lowering of the temperature and pulse and the well being expressed by the patient, speak louder than mere words.

A Safe Method for the Administration of Tincture of Iodine U. S. P.—The usual method recommended for the administration of tincture of iodine in either large or small, in progressively increasing dosage, is by means of a simple, ordinary vehicle, namely, mixed with good, wholesome, fresh cow's milk, and as the human system is tolerant to excessively large doses, the ingestion may be continued by this method over long periods, almost indefinitely. Beginning with a single drop in half a glass of milk with the first meal, two drops at the second, three at the third and so on until a dosage of 20 or 30 drops has been reached, then this amount may

be given three times a day and this maintained for some time. If it now be desired to increase this dose, then the gradually increasing drop method should be reassumed until 50, 60 or even 100 and more drops are given. When the highest single dose has been reached, this dose should then be given three times a day; should, however, an individual's idiosyncrasy show an iodine intolerance, then the dosage may be lessened or for a time entirely inhibited or suspended. Personally I have never observed a single instance of intolerance, nor of iodism, nor an untoward effect, no systemic or organic disturbance, nor any so-called toxic or poisonous effect during the entire period of iodine ingestion. As not only in the treatment of tuberculosis, but in all other disorders no matter what remedy, one may use good judgment and individualization as necessary, so in the administration of iodine. The patient must be under constant observation and if at any time symptoms of intolerance should manifest themselves, then the remedy may be interdicted. As the dose is but gradually increased and if it may be desired to lessen the amount, then the gradually decreasing drop method should be resorted to, lessening one drop with each meal. When the patient has shown marked improvement following the iodine intensive treatment, the dose may be decreased to one-half or less and maintained at that dosage almost indefinitely.

Various compounds, salts and modifications of iodine suggested for internal medication.—Within a comparatively short period, the medical literature on the internal use of iodine in the treatment of the various disorders due to the infectious diseases has been very materially enriched. In passing, it may also be stated that the advertising columns of many of the medical journals have not been spared.

Besides the use of iodine in its pure and crystallized form in an alcoholic solution, attention has also been directed chiefly to a so-called modified iodine said to possess active properties entirely different from the metalloid. We find some of these iodine modifications mentioned as possessing most wonderful antibactericidal properties, for instance, in the allotropic form said to be far superior in this non-crystallizable form, or in its combinations with the various proteins, said to be entirely free from all toxic

properties and free from all irritating qualities and far superior to the chemical salts. Again, some are even said to be prepared by a most peculiar process, this process so to bind the iodine as to make it entirely harmless for internal use; in short, the ideal way for the administration of iodine. The solution of iodine in tannic or gallic acid, iodotannin, not a chemical compound, so much in use by many French internists, should also be classed in this category. It should be remembered that in whatsoever form iodine is used, in whatsoever way that it may be administered, the end results will always be the same. No matter if iodine is administered in its purity, or in the form of its salts, in the so-called modified or non-crystallizable, in its allotropic or in any other form, iodine will be found in the blood plasma, in the kidneys and tissues, in identically the same combination irrespective of the form of ingestion and irrespective of the method of administration, hence the simpler method, that by mouth, the most natural way, is always efficacious and more so than by the methods of absorption through the vagina or rectum by subcutaneous, intramuscular or intravenous injection. Most of the latter methods are cumbersome, some are more or less painful and offer no advantage over the simple method by giving iodine in the form of the tincture by way of the mouth with milk.

CONCLUSIONS AND SUMMARY.

It must be admitted, notwithstanding what has been said, that the ingestion of iodine, either in the free state in its purity, or in an alcoholic solution, may have a most irritating effect upon the gastric mucosa, and this is due to the sudden coagulation of the albuminous secretions from the mucous layers of the stomach, producing localized, highly hyperemic areas and the astringent and puckering effect which follow may cause serious disturbance. In giving the iodine in a menstruum, like sweet milk, one is quite sure to avoid all untoward symptoms and ill effects. Now the question arises: May it not be possible that the so-called toxic effect of iodine, if it is at all toxic, is positively averted by giving it in a vehicle like milk, which is its natural and physiological antidote, or again may it not be that the non-toxic effect is due to the preparing extemporaneously of an albuminate of iodine, a protein compound, when it is administered in

milk? Be that as it may, it remains an established fact that the giving of iodine in any reasonable dose, either large or small, will be tolerated by the most sensitive or delicate stomach capable of digesting milk and an iodine impression may be brought about by this method in a simpler way and with quicker results than can be accomplished by any other, be it by subcutaneous, intravenous or intramuscular injections, or by local applications. By this method the administration of iodine in the form of the tincture in from 60 to 100 drops three times a day may be maintained for months and months without the least fear of either a local or a systemic disturbance, hence, it may be stated definitely and observations have warranted the contention that;

1. Iodine is both microbicidal and antitoxic.
2. Iodine is non-toxic, non-irritant and non-caustic.
3. Iodine is rapidly eliminated and does not accumulate in the body.
4. Iodine does not coagulate albumin.
5. Iodine produces active phagocytosis.
6. Iodine is a recognized antiseptic possessing great powers for penetration.
7. Iodine, modified or in combination with various proteins, possesses no advantage over the ordinary tincture, when given in milk.
8. Iodine organic preparations are all changed in the economy, the iodine being liberated from its molecule.

9. Iodine, when given in milk, has never produced iodism or gastric disturbances; both are negligible.

10. Iodine as an inhibitor or destroyer of bacillary growth, within the tissues and organs of the human body, has no equal in medicine. Hence, it is the most logical and appropriate remedy for treatment of tuberculosis in all its various forms.

25 E. Washington St.

CHEMOTHERAPY IN TUBERCULOSIS.*

M. W. HARRISON, M. D.,
COLLINSVILLE, ILLINOIS.

Tuberculosis is one of the oldest diseases of which we have a record. Traces of it have been found in the Egyptian mummies, and ever since

the earliest times a specific remedy for it has been sought, but as yet it remains to be discovered. I believe that every known drug and a great many combinations of drugs have been used in the treatment of tuberculosis.

When Koch discovered the tubercle bacillus in 1882, that was the first great step taken in the universal fight on this dreaded disease. This brought forth great efforts, and a vast amount of work has since been done towards a specific remedy for tuberculosis, and all of this work has not been in vain, for while, as yet, we have no specific remedy for it we have several very important and valuable aids in the treatment and diagnosis, and I believe every year brings us a little closer to the goal for which all workers in tuberculosis are striving to attain. Personally, I believe that whenever a specific is discovered, it will be a chemical and not a biological one.

The principles of chemotherapy as advanced by Ehrlich are of such character that their application to infectious diseases are practically unlimited. The chemical agent employed must possess a much stronger affinity for the microorganisms than it has for the body-cells, or, in other words, be more parasitotropic than organotropic, and the greater the difference between these the more valuable is the agent and there is only one way of determining this value, and that is by animal experimentation.

As a result of the study of hundreds of different products by Ehrlich and other noted investigators it was found that after all there were only a few that exert parasitotropic effect in animals, and they have been classified into three main groups:

1. The group of arsenical compounds.
2. Azo-dyes of the benzidin group, such as trypan red, trypan blue and trypan violet.
3. The group of basic triphenylmethane dyes, such as parafuchsin, methyl violet and others.

The tubercle bacillus, however, presents problems distinctly different from most of the other infectious diseases, owing to their peculiar construction, and also to their location in almost inaccessible places removed from the circulation, which, therefore, makes it necessary to learn what chemical or agent will not only penetrate a tubercle to reach the bacillus, but one that will readily penetrate an avascular tuberculosis lesion. The composition and construction of the bacillus

*Read before the Southern Illinois Medical Association, Nov. 2, 1916.

itself makes its destruction an entirely different problem than one of destroying trypanosomes, spirillae and spirochetes that live mostly in the blood itself, and have no protective layers of fat and wax.

The tubercle bacillus, with its fatty or waxy contents, has been found to be impermeable to fat soluble dyes, while many substances which are insoluble in fat but soluble in water, such as fuchsin and methylene blue, stain it quite intensely, which shows that the fatty content is not the chief factor to overcome. When fat soluble dyes are fed to tubercular animals the dye is absorbed with the fats, but does not penetrate into the tubercular lesion, which acts like any colloid, permitting crystalloids to pass through it.

The fact that water soluble dyes can penetrate the tubercle bacillus has lead to many experiments with various dyes, some of which were found to have properties possessing a selective action for the bacillus but exerted only a mild or no destructive action upon it, which it must do to be successful, in other words it is necessary to have a combination that has a haptophore group and a toxiphore group of atoms in its construction. It is not necessary that the whole molecule possess an affinity for the cell receptors, for it is presumed if one or more atoms become attached that the remainder of the molecule will be carried along.

In some experiments I have worked out with a combination of dyes, I find that by changing their chemical construction and substituting different atoms, I have now a combination with which I have made the following tests:

1. A culture containing two drops of the solution and streaked with virulent tubercle bacilli produces no growth.

2. A 10 cc. broth culture with tubercle bacilli to which 8-10 drops of the solution has been added, then kept at a temperature of 39 degrees for 12-24-36 hours at which intervals a loopful was taken and streaked on other culture, produced no growths.

3. A well developed growth of virulent bacilli on agar was covered with the solution and let stand in an incubator for 12-24 hours, and there was a good mass stain and good individual stain.

4. One drop of dilute filtered suspension of virulent tubercle bacilli in normal salt solution was added to 4-5 cc. of the solution and put in the incubator for 12-24 hours. One drop of this

mixed solution and suspension was diluted with 4-5 cc. of normal salt solution and injected into pigs and rabbits, and after sixty-three days no tubercle had developed.

5. Rabbits were inoculated with tubercle bacilli and after 2-3 weeks 0.5 cc. of the solution was injected three times a week. Killed after one month's treatment, and where tubercle had developed an emulsion was made of them in normal salt solution and another rabbit injected in which no tubercle developed after about two months' treatment.

I demonstrated this treatment to the Madison County Medical Society in August, and asked them to send me a case or cases and have any one or number of the members examine and follow out the treatment. Three physicians from Edwardsville took advantage of that offer, and sent me what one of them termed "a dead one," which was not really a test. We would not expect salvarsan or anything else to cure some cases, but this case is still living, and has improved to this extent: His temperature was 101° daily and now it is 100°, his pulse was 120 and is now 100, he had a severe hemorrhage just before they brought him down, his appetite was poor; he has had no more hemorrhages, his appetite is good, and he has gained 12½ pounds since August 16, which I think shows the treatment will prolong life at least.

PREGNANCY IN THE TUBERCULOUS.*

EDWARD M. HEACOCK, M. D.,

CHICAGO.

Pregnancy in the tuberculous has become a much discussed subject because of the agitation in favor of inducing abortion in tuberculous suspects and in actual tuberculous individuals.

It cannot be denied that the practice of inducing abortion in persons suspected of tuberculosis, without a demonstrable lesion, might readily become a source of abuse by furnishing a pretext for the performance of criminal abortions. But at the same time the fact that a tuberculous woman who has become pregnant runs very great risks of losing her life as a result of childbirth is a very stubborn one, and abortion should meet with serious consideration. Not only does she run the risk of losing her own life, but she also

*Read before the Tuberculosis Class of Rush Medical College, July 16, 1916.

runs the risk of bringing into the world an individual who will later become tuberculous and be a burden to friends and relatives, or to the state.

In spite of the amount of literature on the subject, the principles and proper methods of procedure have not been definitely determined by those most interested in the subject.

The impression that pregnancy predisposes to tuberculosis in a healthy woman may well be dismissed with the statement that pregnancy does not predispose to that disease any more than any other condition would with an equal amount of exhaustion and loss of blood. The tubercular germ must be present to produce tuberculosis. The field is but prepared for the reception and growth of the organism. When the germs have been sown, and no attempt made to check their growth, then must the individual succumb to the destructive toxins of the organism.

Early tuberculosis may not be recognized, that is, no demonstrable lesion of tuberculosis may have been discovered in a young woman and with the onset of gestation foci may light up, and in that way give the impression that pregnancy was the exciting factor.

Careful examination should be made of all pregnant women, or all young women who may become exposed to pregnancy, for the presence of tuberculosis. If an active process is found, it should be determined whether pregnancy should be terminated or not, and what procedure should be adopted.

Fetal tuberculosis was until recently considered a pathological novelty. Many cases of congenital tuberculosis have been recently discovered. DeLee, in his latest edition of *Principles and Practice of Obstetrics*, reports several instances where bacilli have been found in still-born infants. The most common site of the lesion in fetal infection lies in either the liver or spleen, the organs which receive the umbilical veins.

Many have contended that tubercle bacilli were not present in the circulation until in the latter stages of the disease, but some explanation should be given why, if that is the case, tuberculosis should follow a slight injury to the bony structure in an otherwise healthy young adult. It is highly probable that a few bacilli get into the circulation, but cause no damage, being taken care of by the lymphocytes, in every case of tuberculosis. The fact that they are not found may be explained by there being so few,

and that the period of time the bacilli enter the circulation may not correspond to the time when the specimen is taken. Tuberculous meningitis is frequently seen where there is no demonstrable lesion, unless it should be a slight enlargement of some obscure lymphatic gland.

Tuberculosis is a systemic infection, and it is my belief that a bacteremia is present in the earlier stages of the disease. The infrequency of fetal infection is not due to the absence of bacteremia, but rather to the bacteriolytic action of the placental tissue.

Tuberculous pregnant women show a tendency to abort in proportion to the advancement of the disease. For instance, in the earlier stages 15 per cent abort, while in the advanced cases as many as 30 per cent may lose their conception. In the latter months of pregnancy the presence of large amounts of tubercular toxins in the blood cause the same reaction in the fetus that a large amount of tuberculin would, and consequently fetal death.

We do not see immunity in the offspring of tuberculous mothers, as would be expected if our well-thought-out theories of immunity were applicable to these cases; nor do we see any semblance of relative immunity. Most frequently the child is small, weak and puny, and later develops a strumous diathesis, and sooner or later falls a victim of the disease. However, some die in utero from the effects of the toxins.

During pregnancy there are many things which the system has to contend against, and these added to the toxins of tuberculosis would be very liable to break down the patient's resistance and aggravate the disease.

The pregnant woman suffers from more or less nausea and vomiting, which is very weakening because of the loss of proper nourishment or the inability to take food. Then again there is the increase of nutrition required by the child for development. In addition, there are thrown into the circulation the products of fetal metabolism which, with the weakened and diseased condition of the patient, would not be disposed of without great strain on the organs of elimination.

In the opinion of Farini the puerperal state we should endeavor to keep the mother in good aggravates the disease process. He states that condition regardless of the fetus. He would sacrifice the fetus early in pregnancy if there were

any evidence of activity; the better the mother's condition the more imperative that an early interruption should take place. Even in the latter months of pregnancy he would not wait until term, but would bring on premature labor to save the vitality of the mother. As a rule, abortion should be performed during the first two months of pregnancy, by simple dilatation and curettage. The woman when freed from the pregnancy should be given the best sanitarium treatment to build up her resistance to combat the disease process.

According to C. S. Bacon of Chicago it is safe to perform abortion by curettage up to the twelfth week, but Keyes of Chicago prefers to do a hysterotomy on women who have passed the ninth week, especially where it is advisable to sterilize the patient.

Unless the prospects were good for saving or prolonging the life of the mother, abortion should not be performed, but rather we should lend our efforts toward saving the child, as it would not be justifiable to destroy the life of the baby, even though the dangers are great that he would later develop tuberculosis, when the life of the mother is despaired of.

The tendency to sterilize every tuberculous woman is not justified, because in many cases the woman has recovered and in later years given birth to healthy children without danger to herself. However, a woman who has had a demonstrable lesion should be advised to wait until at least five years have elapsed after apparently being cured before becoming pregnant.

Where the disease has advanced, abortion should be induced early, and at times hysterectomy should be done. This especially is advised where there is suspected tuberculous infection of the uterus and its adnexa, or where the patient suffers from profuse menstruation and it is desirable to check the loss of blood at the monthly periods.

Early tuberculosis may not be recognized until in the puerperium, when the patient does not do well. There may be a constant low-grade fever which baffles the obstetrician until his attention is directed to the chest, or a higher temperature with the onset of miliary tuberculosis and rapid progress of the disease noted.

Where there has been a quiescent lesion for a number of years, the obstetrician and internist should watch the patient carefully. The obstetrician should direct his efforts toward alleviating

the distressing symptoms of early pregnancy and endeavor to carry his patient through her pregnancy and lying-in period with as little loss of vitality as possible, and the internist should watch for any evidence of an active lesion making its appearance.

The hard and fast rule that no tuberculous woman should marry will not be observed; however, every young woman infected should be warned of the dangers of pregnancy, and advised as to the best means of prevention of conception until she has been free from all symptoms of the disease for a number of years. She should also be told of the dangers of infecting her consort.

A woman who has tuberculosis may endure pregnancy and apparently be benefited by it, only to advance rapidly during the puerperium and during the few months following from the demands made on her system by the nursing infant. Therefore she should not suckle her child, nor for the child's sake fondle it. It would be better that she be placed in a sanitarium and the child fed by a wet nurse.

When pregnancy has passed the fifth month, watchful waiting should be the policy. At the end of the ninth month premature labor should be induced. Dilatation must be secured with as little physical effort on the part of the mother as possible, and for this it is best to use a metru-rynter. The exertion required to expel the child, with intra-abdominal pressure, frequently disseminates the bacilli and the disease progresses rapidly. When the uterus is fully dilated, the membranes should be ruptured, forceps applied and the child delivered. Gas or spinal anesthesia may be used.

To summarize:

As a general rule, tuberculous women should not marry.

Tuberculous women should not become pregnant.

If they become pregnant, they should be aborted in the first two months of pregnancy.

If later than two months pregnant, hysterectomy may be the best method of procedure.

Patients should be free from symptoms of the disease for at least five years before risking pregnancy, and then only under good medical and obstetrical supervision.

Tuberculous women in the early stages should not be sterilized.

Tuberculous women in the advanced stages may require hysterectomy to preserve vitality.

Tuberculous mothers should not nurse their offspring.

Tuberculous mothers should not fondle their children.

A FEW REMARKS CONCERNING THE DIAGNOSIS OF EARLY PULMON- ARY TUBERCULOSIS.*

GEO. HALPERIN, M. D.,

CHICAGO.

The open air and sanatorium treatment have brought about a very definite change in our attitude toward pulmonary tuberculosis. A new note—one of optimism—was added to a hitherto hopeless subject. The truth slowly dawned upon the medical profession and upon the laity that by far the greater number of cases were curable; curable, provided the treatment was instituted early in the development of the disease.

The realization that the greatest scourge of mankind could be mastered, resulted in a new and sustained enthusiasm. And so we find the medical profession, the government, various municipal and private bodies joining in the campaign against this universal malady.

The one important factor in the campaign is the early recognition of cases. Not until we can diagnose them early can real progress be made. This is pre-eminently the doctor's part of the task.

Let us first agree as to what we understand by incipient pulmonary tuberculosis. According to the classification adopted by the National Association for the Study and Prevention of Tuberculosis, it is as follows:

Slight or no constitutional symptoms (including particularly gastric or intestinal disturbances, or rapid loss of weight). Slight or no elevation of temperature or acceleration of pulse at any time during the 24 hours. Expectoration usually small in amount or absent. Tubercle bacilli may be present or absent. Slight infiltration limited to the apex of one or both lungs or a small part of one lobe; no tuberculous complications.

When all the new signs and symptoms, laboratory methods, not excluding the tuberculin test

and roentgenography, are considered in the light of their practical value, there still remain only two procedures upon which our diagnosis must rest. These are: The history of the patient and the physical examination. I shall further state that of the two the history is by far the more important. We must learn to diagnose them before definite physical signs make their appearance. The ability to obtain a good history presupposes, among other things, an accurate conception of the disease process, its pathology and symptomatology.

What is the fate of a tuberculous focus in the lung? The reaction which it provokes results in the production of a round cell infiltration with subsequent deposition of calcium salts and encapsulation. For a while that ends it. At some later date when the resistance of the individual is lowered through disease, repeated childbirths, prolonged lactation, worry, overwork, excesses in alcohol, etc., the focus may take on a new activity and then cause symptoms. I propose here to use Pottenger's classification because of its comprehensiveness. He divides them into three groups:

1. Those due to toxemia.
2. Those produced reflexly.
3. Symptoms directly due to the tubercular process.

1. Symptoms produced by the toxin absorption manifest themselves by early tire and diminished energy. Patients claim that their routine work becomes a burden to them. Often they display an irritability. There is a slight loss of weight, and, very often, a marked loss of strength. In short, a combination of symptoms referred to by the laity as "rundown" and passed so frequently by the profession for neurasthenia. Other symptoms are fever, acceleration of the pulse rate, chills and sweats.

Is there anything pathognomonic in this picture? No toxemia due to any other cause can do the same; for example, bad tonsils, tooth-abscess, infected prostate.

"In the second group we see symptoms the result of reflex irritation; cough, pain in the chest, hoarseness, tickling in the larynx, muscle spasm and muscle degeneration. On the part of the lung lesion proper, oft-repeated colds, bloody sputum, hemorrhage, bacilli in sputum." (Pottenger.)

*Read before the Chicago Medical Society, Nov. 1, 1916.

With this in mind we can proceed more intelligently with the history taking.

What about the patient's family history? We know that tuberculosis is not inherited, but we must not forget that the offspring usually begets a certain diathesis, a weak constitution, a tendency toward tuberculosis, or, if you please, a lack of resistance against this and other infections.

Of greater importance than this is the question of direct exposure to infection from actual cases in the family. We should, therefore, inquire carefully into the present state of health of each member, the exact cause of death, if any have died, and, above all, one should not be misled by such terms as "decline, chronic bronchitis, weak lungs, dyspepsia, nervousness, anemia," etc.) (John R. Hawes, Jr.)

It is not sufficient to know that in your patient's family there is, or was, a case of tuberculosis. This information to be of value must also tell us how long and how intimate the exposure was.

In the past history, measles and whooping-cough are of importance in early life. Of the diseases and abnormal conditions which are apt to come later in life there are five, as pointed out by J. R. Hawes, Jr., which are of special importance as related to a possible tuberculosis. These are: (1) Pleurisy, (2) influenza, (3) bronchitis, (4) "run down," (5) fever or slow fever.

The occupation of an individual is of great importance. The question of conditions under which one works, exposure to variable temperatures, fumes, gases and dust; long hours and poor ventilation; home conditions, the conditions under which the individual sleeps—ventilation of bedroom—exposure to tuberculosis in the place of employment and finally the habits; excesses in alcoholism, deprivation of sleep, insufficient food and syphilis, are all etiological factors of greatest importance and, therefore, should be thoroughly investigated in each case.

We next come to the patient's present illness.

It is important to ascertain the beginning, the first deviation from the normal. In many cases the first symptom is found to be a constitutional one, such as loss of strength or energy, fever, etc. *The most important symptom of all is the presence of fever, and next to it is acceleration of the*

pulse. The temperature should be taken for at least one week at 8 a. m., 12 m., 4 p. m. and 8 p. m. The importance of any persistent though slight rise of temperature above normal is well known; the equal or even greater importance of a constantly subnormal temperature, combined with a rapid pulse, over 100 or 110, has not been sufficiently emphasized. In no other disease are relatively slight variations in temperature so important. Combined with the loss of weight and strength and other suspicious constitutional symptoms, a slight afternoon fever up to 99.2 or 99.4 or a constantly subnormal temperature with rapid pulse, may be considered pathognomonic of a tuberculous infection, whether or not definite signs are found in the lungs. Hawes, in his book on the early pulmonary tuberculosis, says: "If the stethoscope were used less and thermometer more, fewer mistakes would be made."

Next in importance are loss of weight and loss of strength. Vasomotor disturbances, such as flushes and chilly feelings, are frequently met with in early cases. Actual chills and night sweats belong to a more advanced stage.

Hoarseness due to reflex relaxation of the vocal cords and not to any tuberculous process, is a very common and early symptom.

Cough is an early and most constant symptom, and is important because it draws the attention of the patient and the physician to the lungs. Any cough which lasts over four weeks requires careful investigation and should be considered as strongly suspicious of tuberculosis.

Frequently there is no sputum, just as there may be no cough. When there is sputum, however, it should always be examined. To increase the amount of sputum brought up, one may give syrup of hydriodic acid or iodide of potassium. But the *most important thing to learn about the sputum*, as Hawes insists, *is that the failure to find the bacilli in it does not rule out tuberculosis. A negative sputum should be looked upon as a rule rather than the exception.*

The best method of sputum examination is the antiformin method.

Symptom hemorrhage is too well known to need any discussion. Any hemorrhage from the mouth should be considered as definite evidence of pulmonary tuberculosis until proved to be the result of some other process. In connection

with this some of the members of our profession would do well to get rid of certain superstitions such as "Vicarious menstruation" and "bleeding tonsils."

Physical Examination.—When you stop to consider that physical signs are so often absent, and that so frequently the results of a painstaking examination are extremely meager as to findings, you will agree that the need of a systematic routine method is great. Under this heading it is well not to forget other disease conditions than tuberculosis. So that in every case it is not the lungs that we are examining but the individual. The examination should include the entire body.

You will pardon me for being so elementary as to remind you that a systematic examination of the chest begins with inspection and is followed by palpation, percussion and auscultation.

You will find in most text-books and treatises on the subject that inspection and palpation reveal very little if, indeed, anything. This statement must be seriously modified. As we all know for some time, there may be a slight retraction of an apex which will manifest itself by a deepening of the supraclavicular fossa. There may be a slight lagging of the chest in breathing on one side, which speaks for an involvement of the apex on that side. This observation can be made only with the patient breathing quietly. If you have him take a deep breath, the slight defect in muscular function will be overcome. (Pottenger.)

In connection with inspection and palpation, let me draw your attention to the so-called Pottenger sign. Francis Pottenger of Monrovia, California, describes, in a book, result of some twelve years of observation, a so-called muscle spasm—a visceromotor reflex.

This visceromotor reflex, as expressed by muscle spasm, has been of the greatest value to us in the diagnosis of intra-abdominal inflammatory conditions. In acute appendicitis, cholecystitis, perforated ulcer of the stomach, we find a local rigidity of the muscles.

Let us consider the case of acute appendicitis. One of its earliest signs is local rigidity of the belly wall. This is not the result of a local peritonitis, but is due to the irritation of a corresponding segment of the spinal cord with resultant efferent motor stimuli.

Pottenger insists that the same phenomenon takes place in the lesion of the lung tissue. The lung is supplied by the vagus and the sympathetic nerve fibers. The irritation of these is communicated through the rami communicantes to the spinal nerves and through the latter to the corresponding segment of the spinal cord. In response to these afferent stimuli, the cord sends out efferent motor stimuli, which result in a muscle spasm—precisely as in the case of acute appendicitis.

According to the same author, the earliest signs are found in a hyper-tonus or spasm of the muscles, or portions of the muscles, overlying the apex. These muscles are the trapezius, the scaleni, the sterno-cleido-mastoid, and the rhomboids. The sign can be appreciated by inspection, but still more readily by gentle palpation.

If this state of muscle spasm continues any length of time, atrophy (overwork atrophy) takes place. Muscular degeneration in pulmonary tuberculosis is always a local affair.

Those of us who had the privilege of seeing Dr. Pottenger pick out lesions by inspection and palpation alone, with a most astounding ease and precision, believe that there is something in the sign. In summarizing, I wish to say that both inspection and palpation as methods of diagnosis in the incipient cases assume a tremendous importance in the light of Pottenger's work.

Percussion, generally speaking, is a very difficult method to master. It requires years of practice and even then is often misleading. Both Krönig's and Goldscheider's methods in mapping out the apical isthmus of resonance have not helped us very much except, perhaps, to teach us careful percussion of apices.

Everyone knows that pronounced dullness means consolidation, but in comparing the pitch of the percussion sound, one should take into consideration the existence of disparity in the thickness of the chest wall. Muscle spasm and muscle degeneration again play an important part here.

Auscultation is by far the most delicate of all methods, and gives us the most reliable, as well as the earliest signs of consolidation. To be of value, however, our students must be taught to appreciate what constitutes normal breath sounds, and then the deviations from the normal—the

broncho-vesicular and the bronchial or tubular breathing. High-pitched prolonged expiration is a most suggestive and important sign of early consolidation. The persistent presence of râles in a localized portion of the lung, such as the apex for example, is pathognomonic. The râles may be very few and hard to detect. They are usually heard at the end of an inspiration. There are several ways of bringing them out; by asking the patient to cough or to whisper (Beifeld) and then take a deep breath. No examination of the chest can be considered complete without auscultating after forced cough or whisper.

John B. Hawes, Jr., summarizes the situation as follows:

In the majority of our leading medical schools the subject of tuberculosis receives scant attention. Students are still taught that in order to make a definite diagnosis of pulmonary tuberculosis there must be bacilli in the sputum of marked evidence of consolidation in the lungs as shown by dullness, bronchial breathing, increased vocal or tactile fremitus and râles. That a diagnosis can and should often be made without a positive sputum and without many of these signs in the chest is rarely brought to their attention.

This is an unfortunate state of affairs. We can never hope to handle tuberculosis successfully until every physician and every medical student realizes (as many of the public now do) that the all important points in the diagnosis of early tuberculosis are not bacilli in the sputum, nor definite signs of an active process in the lungs, but constitutional signs and symptoms which show only too clearly, were they but correctly interpreted, that the patient is sick. A diagnosis to be an early diagnosis must be made before there is breaking down of tissue with bacilli in the sputum; in most cases a positive sputum means moderately advanced tuberculosis and that many of the patient's chances are already gone. At present great efforts are being made to isolate and segregate advanced consumptives, but such efforts will be of little avail unless patients are discovered and put under treatment when in the incipient and curable stages, and a check thus put to the large number of consumptives who each year fall into the advanced class.

And now it remains to consider the value of the tuberculin test, and roentgenography. The most important question to establish in regard to the tuberculin reaction is its specificity. Law-rason Brown makes the statement that no case of early pulmonary tuberculosis has yet been shown to fail to react to a dose of 0.010 cc. or less of O. T. Its specificity seems to have been established beyond reasonable doubt.

The sub-cutaneous or intra-cutaneous methods are those to be used in adults. Three distinct phenomena may occur after an injection; first, a general or constitutional reaction. The patient begins to feel indisposed about 18 hours after an injection. This rapidly becomes more marked and he is soon willing to go or remain in bed. Severe headache, general malaise, pain in the back and the limbs, a slight tendency to cough, loss of appetite, in some cases nausea and vomiting, and, in severe reactions, profound prostration occur. The temperature often rises to 101, but may not reach more than 100 or may go to 107 without apparent ill results. The day following the temperature is again normal.

Second or focal reaction. When these changes occur, they are such as are produced by hyperemia in the tuberculous areas, *e. g.*, rough breathing, appearance of râles, increase in the sputum. Tuberculous glands or joints may show marked local reaction. Third, the local reaction at the point of injection.

The constitutional reaction is of value. However, the only interpretation to be placed upon it is that there is somewhere in the body a tuberculous focus. It does not tell whether it is in the lungs or in a gland, nor does it tell us whether the lesion is a passive or an active one. Upon the presence of this reaction alone with an individual in good health and without constitutional symptoms or physical signs one would not be justified in instituting the treatment, nor in pronouncing the patient tubercular.

Focal reaction in the lungs is of the greatest diagnostic value, but is said by the best authorities to occur in only about thirty per cent of early cases.

As to the action at the point of injection, not much reliance can be placed upon.

To sum up: In the presence of certain constitutional signs, a positive general reaction makes the diagnosis so much more positive, especially if the focal reaction is present. So that at its best it cannot be said that the tuberculin test can supersede or take the place of a careful history and a careful physical examination. Rather it should be looked upon as an additional method of value.

The use of the method requires a certain amount of experience and judgment, and can be carried out only under certain conditions. It

cannot be said to be entirely without danger, and if performed by those not skilled in its use, it is capable of doing great harm, not only by lighting up old quiescent processes, but by a wrong interpretation.

My personal experience with roentgenography is too short to justify a conclusive opinion. For some time at the Central Free Dispensary we tried to test its value. The work was always done and interpreted for us by an expert—Dr. Rowntree of Presbyterian Hospital. The results were quite interesting. At this stage I can only suggest a few tentative views:

1. To diagnose pulmonary tuberculosis from an x-ray plate alone is not a safe procedure.

2. In conjunction with a careful history and a physical examination, it becomes an additional method of value.

3. The shadows upon the plate do not tell us whether the lesion is a healed or an active one.

4. When the presence of the disease is established, our knowledge regarding the extent of it can be made much more certain by x-ray plates than by the physical examination.

5. Every suspicious chest should be x-rayed, for occasionally most surprising and unsuspected findings are thus revealed.

The method will, in my opinion, prove of considerable value in the diagnosis and in the prognosis.

References:

1. Early Pulmonary Tuberculosis. John R. Hawes, Jr.
2. Clinical Symptoms and Physical Signs in the Early Pulmonary Tuberculosis, etc. F. Pottenger, Illinois Medical Journal, Jan., 1916.
3. Lawrason Brown, Osler's Modern Medicine.

A RADICAL CURE OF OSTEOMYELITIS OF THE RIBS.

EMIL G. BECK, M. D., F. A. C. S.,
Surgeon to the North Chicago Hospital

CHICAGO.

Disease of the ribs are very misleading in that they deceive the surgeon in the diagnosis and lead to faulty treatment. This accounts, in a large measure, for the ineffectiveness of the removal of ribs after the disease has progressed to a stage where abscesses, suppuration, and sinuses have resulted.

During the past ten years I have had, under my observation and treatment, sixteen cases of diseases of the ribs, most of which have had one

or more operations before I saw them. One case had sixteen. I have adopted a certain procedure in treating these cases, which is so effective that I desire to publish the principles which I have employed in obtaining these results. Of the sixteen cases treated, in ten, the disease was confined to the ribs, in the remaining six cases part of the sternum was involved. All of these sixteen cases were of the very chronic type, each giving a history of a long siege of suppuration and usually of being first treated for some other condition, especially intercostal neuralgia or rheumatism, sometimes for pleurisy. When the discharge continued, after the first operation, there usually followed a series of scrapings of the sinuses, which was, of course, of very little avail.

The etiology of the disease could not be determined in every case. In most it was tubercular, at least the pathological findings pointed to that form of infection. Three cases of rib infection gave a clear history of typhoid fever and in two of these typhoid bacilli were found in the secretion. Two of the cases were complicated with empyema and it is very likely that the empyema resulted from a tuberculosis of the rib.

In several of these cases in which diseased ribs had been previously removed and the suppuration persisted thereafter, it was found by subsequent investigation, through a method I will here describe, that another diseased rib was overlooked. The surgeons cannot be blamed for not having recognized the disease of that rib, because its surface appeared perfectly normal, the disease being on the under surface, or channeling through the cancellous portion. I shall show radiograms illustrating this graphically.

Results were as follows:

Fourteen cases are entirely healed, without recurrence.

One case was refractory to all forms of treatment. The patient moved to California, so that I lost track of him. He was not operated upon.

One case is still under my care and was operated on this week, so that I cannot report on the end result of the same at the present time.

The plan which I have adopted in dealing with these cases and which proved most satisfactory is as follows:

I first tried a most conservative treatment, namely, the injection of bismuth paste, a method which is well known to you. If this treatment

failed I then resorted to a *most radical operation*, which consisted in eliminating every vestige of the disease. The technique I will describe later.

I must here state that in this class of cases, namely, diseases of the ribs, the bismuth treatment was not quite as effective as it is found to be in other forms of chronic suppurating sinuses such as result from joint tuberculosis and other forms of chronic osteomyelitis. Of fifteen cases of this group only three healed entirely with the bismuth treatment alone, that is, without any surgical interference. The remaining twelve had to be operated upon before a cure could be accomplished. In other forms of osteomyelitis with sinuses we are able to clean up at least sixty per cent. of the cases without any surgical interference, while in this class of cases not more than 25 per cent. will yield to the bismuth treatment alone.

The reason for this is obvious, when we take into account that the disease of the ribs affect the medulla most frequently, the pus runs through the center of the bone, and the paste cannot be forced through the entire cancellous channel of the rib and fill all infected crevices.

The bismuth injections, however, were employed in every case for the purpose of making a correct diagnosis. The paste usually finds its way into the rib, which is affected, thus giving to the surgeon, through the roentgenograms, a definite guide to perform a successful operation. With this aid he will not likely miss a diseased rib, which sometimes appears normal on the outer surface, but is diseased in its interior, or on its under surface.

I consider the injection for diagnostic purposes in these cases as most essential and at the same time to enter a protest against the use of the probe as a reliable diagnostic instrument. The probe, no doubt, is at times a valuable diagnostic aid, but it very frequently misleads us, so that the harm that is frequently done through depending on its diagnostic correctness will far outweigh the assistance which it renders in diagnosis.

The probe is especially disastrous when we come to ascertain the depth of bone cavities, or of fistulous tracts. One need only to glance at one of these radiograms of injected sinus tracts to convince himself that the use of the probe to ascertain the course of the tract is ridiculous. The tip of the probe will be resting in the nearest

pocket or recess of the tract and leave us under the impression that we have reached the end, when, in fact, there may be a network of sinuses in which the probe cannot penetrate.

The cases which would not yield to the treatment by bismuth injections were those which contained sequestra, where the disease penetrated the cancellous portion of the bone and the paste could not find its way to the focus of the disease. The treatment, however, was persisted in for several months before it was given up as inefficient, because now and then we could cure a case by injection which, in the beginning, did not show any tendency to improvement.

Wherever I did not succeed in stopping the suppuration by this conservative treatment, namely, by bismuth injections, I have gone to the other extreme and resorted to the most radical procedure, in order to eliminate every vestige of diseased tissue. I have found by experience that unless the entire diseased area is exposed and removed, an operation is practically useless; and this explained to me why so many of the cases operated on ten or fifteen times previously had not healed. It was because the surgeon was satisfied with a curettage of the bone cavity or the rib, without definite knowledge as to the extent of the disease, it often extending far beyond the point where the curet could reach.

At this point I wish to deprecate the blind method of curetting bone cavities by introducing the curet through the sinuses and scraping in all directions without ocular inspection of the cavity, which is being curetted. The method seems to me most inadequate and uncertain, mere guesswork as to whether one has reached all diseased areas. I have convinced myself many times by exposing these cavities and inspecting them after I have curetted them and found that I often curetted in the direction of healthy tissues and left most of the diseased area untouched.

The plan I have pursued in the cases which required operation is as follows:

After I had determined exactly which ribs or what part of the sternum were diseased, I made a most adequate curved-skin flap incision, which exposed a very large area and under ocular inspection I resected every vestige of the diseased bone. Then instead of closing the cavity by sutures, as was customary, I left the cavity entirely open, gaping, and packed it with gauze.

In the deepest recess of the wound the skin flap is placed and gauze packed against the outer surface of it, so that it may cover and line a part of the cavity. I never employ any suture material in the skin, but allow the surfaces to heal by granulations, and after the granulations have sufficiently formed, the margins of the skin and the granulations are covered with adhesive plaster strips. This procedure is quite effective in producing epidermization of the granulating wound, the epithelium growing rapidly from the edges of the skin towards the center.

I have described this method in detail elsewhere. I wish to state that since employing it I have given up skin grafting entirely. Surfaces four to six inches in width have been covered with new epithelium within three weeks.

The main objects in planning the operations were, *first*, to expose the diseased area by an adequate incision; *second*, to take away every vestige of the diseased tissues under the guidance of the eye; *third*, to close the wound in such a way as not to permit any dead space in the resected cavity; *fourth*, to use no suture material whatever except ligatures for arteries, and leave the wounds widely gaping; *fifth*, to reproduce epithelium of granulating surfaces without skin grafts.

Although each one of the cases that I have had under my care taught some points in the technique and treatment, I will not cite them all in detail, but for an example, I will cite one case and illustrate the method by some photographs and radiograms.

OSTEOMYELITIS OF RIB.

Arthur M., an American business man, 27 years old, weight 172 pounds, appearing in good health, gives the history of an injury in June, 1914, having fallen from a ladder about 18 feet. For several months he was apparently well, when in August a swelling appeared about two inches below the left nipple. It was painful on breathing and also on pressure.

He was operated upon by a competent surgeon; an abscess was opened and the rib curetted. There was no improvement; in fact, the field of infection spread and the swelling extended toward the sternum and also toward the axillary line.

A second operation was performed by two prominent surgeons and two ribs were removed, namely, the fourth and fifth anteriorly; but in spite of this extensive operation, the discharge was just as profuse as before and the pain as severe in breathing and on pressure.

I saw him in November, 1915. I injected the sinus and roentgenograms indicated that the disease ex-

tended into the sixth rib, affecting also the cartilage where it joins the sternum. (See Fig. 1.)

For landmarks in localizing this rib, I have outlined the costal border of the chest by placing some Victrola needles along the edge and then placing some vertically, pointing to the sinus opening. These give distinct information how far the diseased rib is from the costal arch.

Operation November 15. The exposure of the sixth rib was at first a disappointment; the entire length exposed appeared perfectly normal; the periosteum did not show any changes of inflammation. It would have puzzled me a great deal if I had not seen such cases before. I was absolutely certain that disease lurked in the interior of this sixth rib, and without hesitation I resected six inches of the rib, and as



Fig. 1. Method of Localizing Diseased Rib by Means of Victrola Pins.

is clearly shown by the radiograms and by the specimens which I have shown at medical societies, the disease was confined to the interior of the rib, extending into the cartilage. This also is shown in the radiogram; a little of the bismuth paste is still within its center.

I left the wound entirely open (Fig. 2). No attempt was made to suture, it was packed with gauze, thus spreading the wound still further apart. After 48 hours dressings were changed and vaseline poured into the depth of the cavity. The wound began to granulate, so that the adhesive plaster method of epidermization could be employed one week after the operation. One wide strip was pasted over the raw surface, so that it covered the edges of the skin and gauze was packed in the center to bring it in perfect contact with the granulations.

Within four weeks the wound healed entirely, as



Fig. 2. Wound Left Open Without Suturing for Epidermization.



Fig. 3. Wound Closing Without Any Suturing.

shown in Fig. 3. Pain and suppuration entirely disappeared. The patient now is in perfect health and the scar has become less prominent.

The appearance of stitch holes on the chest of the young man is due to previous operation.

I also wish to illustrate one radiogram (Fig. 4) which distinctly shows how the paste reaches the focus of the disease. This is a radiogram of another case. It shows the channel of the bismuth running through the center of the rib, injected at the point where we see the dark spot which is a buckshot which was placed as a landmark at the opening of the sinus,



Fig. 4. Injecting Sinus Localizing Diseased Rib.

In conclusion I wish to say that if this method is followed out in its detail, it will bring results which in former times we were not able to obtain.

SOME PAINFUL AFFECTIONS OF THE FEET

JOHN L. PORTER, M. D.,

CHICAGO

Under similar titles the writer has previously discussed* the symptomatology and etiology of

*Chicago Medical Recorder, February, 1914; March, 1914.

these painful feet affections, and it is with the idea of adding something in the way of treatment,—the result of fifteen years' experience and observation that this contribution is offered.

These cases are almost always seen first by the family physician, and because the etiology and pathology of these conditions have not been well understood nor sharply differentiated, the treatment has often been vague and inefficient.

In probably 75 per cent of the cases of painful feet coming to the attention of the orthopedic surgeon, the patients give a history of having been treated for weeks or months for rheumatism, and when the case is thoroughly studied and a correct diagnosis is made, less than 5 per cent are found to be due to that disease.

Pain and rheumatism have, in the past, been so generally thought of as synonymous, at least where joints were concerned,—and our pathologic conception of rheumatism has been so hazy, that the term has been a very convenient one to use when we did not know what the matter was; but with our better knowledge of joint disease and of the pathology of true rheumatism it is time to realize that, so far as painful feet are concerned, the chances are 95 to 5 against that being the actual trouble.

And right here at the outset I want to emphasize the necessity of careful examination in every case, not only of the feet but of the patient. Merely to listen to a patient's history of acute or chronic pain in his feet, steadily increasing, and with more or less disability, and then to tell him he has rheumatism and proceed to fill him up with salicylates, sending him on his way without even examining him or his feet, is surely a travesty on the practice of medicine, and an altogether too common one. Surely, rheumatism, like charity, covereth a multitude of sins, but chiefly, in medicine, sins of omission.

Our very dependence upon our feet in getting about our daily occupation lends added importance to affections of those extremities. We can suffer considerable pain and disability in the hands or other portions of the body and still pursue our daily occupation, but when one's feet "go back on him" he is "down and out" in every sense of the term.

The foot is an ingenious arrangement of arches and levers designed to receive and sustain the weight of the body and assist the muscles of the legs in locomotion. Anything that

interferes with these functions renders locomotion awkward, difficult and usually painful.

It is because the feet have to bear the weight of the body and the arches and levers composing the foot are subjected to such a strain in supporting and propelling the body that the pain is located in the feet. In many conditions underlying painful feet the hands would be the seat of the pain if we were obliged to walk upon them.

To understand more fully the normal structure and function of the foot it is necessary to go back in man's ancestry to where the foot was allowed to functionate naturally, without the restraint of modern footwear. Indeed, if we study the locomotion of some of the plantigrade animals it may help us to understand some of the mechanical peculiarities of the human foot which still persist after ages of locomotion in an upright position. Watch a bear, and whether he be upright or on all fours, the inner border of the foot points inward and the step is finished with the toes and outer border of the foot grasping the ground. The first thing that strikes us in the gait of aboriginal man, untrammelled by footwear, is that he toes in. Normally, in the human foot the weight is transmitted from the os calcis outward and forward in a circular direction to the toes and the step is completed by the five toes successively grasping the ground. The arches of the foot, both longitudinal and transverse, are thus quickly relieved of the dead weight of the body and give an elastic springiness to the step which is their normal function. Compare the gait of your Indian or half-breed guide in the north woods, who has always worn soft mocassins, as he ambles along with toes turned in and knees slightly flexed, with the stiff-kneed, toeing-out gait of a man in modern shoes and see who can cover the greater distance with less fatigue. One is light, elastic, natural; the other heavy, stiff and tiresome.

Some of the most painful and disabling ailments of the foot are due to mechanical disturbances which interfere with these normal functions, and the most common of these is flat foot, frequently designated as "broken arches."

Clinically flat foot should be divided into three classes. I have designated these as: First, weak foot; second, flat foot, and third, rigid foot. While the difference is chiefly one of degree the prognosis and treatment of the differ-

ent classes vary considerably. The one characteristic of all forms of flat foot is the rotation inward and downward of the tarsus and the pronation of the front part of the foot, and as these distortions persist and progress the three types of the deformity are developed.

Weak Foot

A weak foot is one in which the arch becomes flattened when the patient stands, but the foot looks normal when not bearing weight, and *active* pronation and supination are still possible.

Pain develops usually in the latter part of the day or on fatigue, and tender spots are found at all times, usually under the scaphoid. Sometimes the pain is located chiefly around the external malleolus or under the heel.

Flat Foot

A flat foot is one in which the arch is flattened when the patient is not standing, *active* pronation and supination are lost and passive attempts to supinate the foot cause pain. Tenderness, often exquisite, is found about the scaphoid and os calcis, and the patient walks with a halting gait. These patients often complain of severe pain on first arising, but which wears off later, after they have been about with shoes on. Later in the day they may have pain up the leg to the knee or even to the hips, and occasionally a dull backache. The flat foot differs from the weak foot in that the *patient* has lost the power to supinate the foot but it can be passively supinated by the physician.

Rigid Foot

In these cases the foot is pronated and cannot be either actively or passively supinated. The tarsus, especially the scaphoid and astragalus, are rotated inward and downward,—often to such a degree that the scaphoid comes in contact with the floor, the astragalus is seen projecting beneath the skin, the arch is entirely obliterated, and the patient walks with a halting, shuffling gait and with the feet turned out. The peronei tendons are contracted and stand out stiff and prominent behind the external malleolus and any attempt to supinate the foot increases the peroneal contraction.

Pain is often less severe in these cases than in either of the first two classes, because the stage

of severe pain is past, as the ligaments are relaxed and stretched to their utmost, and the foot has a bony support. The patient at this stage is extremely disabled, can walk only short distances without becoming fatigued, and cannot run at all. All movements at the ankle are limited and the foot is practically a stiff, unyielding stump.

Such feet are usually seen in patients past thirty-five, although occasionally they are found in young adults.

Before discussing the treatment of flat foot, it is necessary to consider the various causes of the trouble, as the successful treatment often depends upon the treatment of the underlying cause as well.

Etiology

Flat foot of any degree may be due to one or more of the following factors:

1. General muscular weakness and relaxation. This form is most frequently seen in adolescence or young adult life in patients with weak, flabby muscles, relaxed tendons and of lazy or phlegmatic temperament, who take little active exercise.

2. Traumatism. Any sudden injury to the supporting tissues of the plantar surface, such as falls upon the feet, Pott's fractures, etc.

3. Disproportion between the supporting power and the weight to be carried: *e. g.*, patients who change from sedentary occupations to carrying heavy weights and those who suddenly increase markedly in weight.

4. Long continued standing or walking on hard floors in improper shoes: *e. g.*, nurses and waiters are frequent victims.

5. Chronic toxemias, especially those due to gastro-intestinal decomposition, especially of proteid foods. Some of the most stubborn cases are due to this cause alone, and its importance as a causative factor is generally overlooked. Many women date their trouble from a certain pregnancy, associated with more or less toxemia.

6. Acute infections, such as scarlatina, diphtheria, typhoid, tonsilitis, influenza and gonorrhea. Severe attacks of influenza in elderly patients are frequently followed by weak and painful feet. Gonorrheal infections are so important in this connection and have so many characteristic points of interest that the subject will be more fully considered further on.

To be sure, some toxemic or infectious process may be responsible for the weakening and giving away of the tissues which support the joints and arches of the foot—but this toxemia is due to some suppurative, infectious or putrefactive process and certainly cannot be called rheumatism. Undoubtedly one of the most frequent causes of painful feet is the wearing of shoes which subject the feet to constant strain by compelling them to support the weight of the body in an unnatural way. Hoffa, of Berlin, once asked me: "Why do all your American shoemakers make valgus shoes?" By "valgus" shoes he meant shoes which are so balanced that the weight is thrown toward the inside of the foot instead of the outside. In the natural gait the great toe points directly forward and the weight is transmitted from the heel toward the second and third toes, and as the weight is transferred to the other foot, the step is completed by the toes grasping the ground (or shoe) and thus giving a springiness to the gait. When the foot is confined in a shoe which is balanced in such a way that this gait is impossible and the weight is thrown inward from the heel and the toe points outward (valgus shoes) then there originates a strain on the arches and supporting tissues which soon produces painful and weak feet, and it is only a step from weak feet to flat feet. Flat feet, if not relieved, sooner or later become rigid feet, and then all elasticity is gone.

In the same way shoes with sharply pointed toes, narrow shanks and high heels, such as worn by most women of fashion, and especially if the shoes are too short, which is often the case, cause great strain to be thrown upon the transverse arch of the foot, causing a flattening which is often accompanied by an excruciating spasmodic pain, known as Morton's metatarsalgia. This very common ailment, for which I have seen various operations performed, including amputation of the metatarsal heads, can be almost immediately relieved and eventually cured by fitting the foot with a proper shoe and supporting the transverse arch with a graduated pad. In this same group of ailments due to mechanical causes should be included hallux-valgus, because the initial distortion of the great toe is undoubtedly caused by ill-fitting shoes, but associated with this distortion—at least in the severe cases—is frequently a gouty or rheumatoid

arthritis, which co-operates, so to speak, with the malposition of the toe to produce the bony enlargement and the inflammatory articular changes which take place. The deformity is easily and permanently cured by operation, but by no other means, and the patient must ever after wear straight-lasted shoes which make no pressure on the great toe. The next group comprises those cases due to acute infections of which gonorrhea may be taken as example. We speak of them as "gonorrheal feet," not gonorrheal flat feet, nor gonorrheal arthritis, although most gonorrheal feet become flat if untreated, and there are cases in which a true arthritis develops and accounts for part of the pain. But the changes which occur in gonorrheal feet are periosteal and peri-articular rather than intra-articular, and these changes are so characteristic that the surgeon who is familiar with them does not ask: "Have you had gonorrhea?" but "When did you have gonorrhea?" There is a peculiar thickening of all the per-articular tissues which is not accurately described as either an edema or induration. Perhaps infiltration is more accurate. The foot looks and feels "boggy" and there is a general sensitiveness of the whole foot. The patient complains of little or no pain when at rest but walking is sometimes almost impossible. The periosteum seems to be involved in the infiltration, especially the periosteum of the os calcis. Squeezing the heel in the hand or pressure on the tubercle on the bottom of the os calcis is usually extremely painful and the continued irritation of the inflamed periosteum causes exostoses to develop later at the insertions of the plantar fascia on the bottom and of the tendo Achillis behind. The prolonged infiltration results in a relaxation of the supporting tissues of the arches of the foot, and if walking is persisted in, the patient almost always develops flat foot.

Acute attacks of diphtheria and scarlatina, or even of influenza, may result in extremely painful feet. I have noticed this especially in the nurses at the County Hospital who have been on duty in the contagious wards and have contracted some infection. Though the infection may be mild, the nurse is often unable to go on duty for several weeks on account of pain in her feet. The trouble seems to be a distinct arthritis of a subacute type which affects one or two of the

tarsal joints or the ankle joint. The joints are very sensitive though usually not swollen, and motion and pressure are very painful. Severe attacks of the grippe, as I said above, especially occurring in people past middle age, sometimes result in such relaxation of all the fibrous tissues of the feet that the patient develops an acute flat foot upon standing, and is unable to walk on account of the pain. Another type of painful feet from an etiologic standpoint is due to autointoxication of some kind. They differ from the acute infectious group in being more chronic, there is little or no swelling and no history of any preceding illness. The patient, usually a well nourished, healthy looking individual, simply says that for a long time his feet have been gradually giving out until at last they cause him so much pain after standing or walking that he finds any prolonged activity impossible. He usually states that he has tried many varieties and shapes of shoes and has bought stock arch supports which are turned out by the thousands without regard for individual foot troubles. Occasionally a patient says he experienced some relief for a little while, after which his feet were "as bad as ever." He then concludes it is rheumatism.

Examination of the foot reveals nothing of note. When he stands the feet may be somewhat pronated and flattened and deep pressure generally reveals tender spots, usually around the scaphoid, sometimes about the external malleolus. The evidence is mostly subjective and is chiefly "pain." The joints proper seem to be free from involvement though there is, in some cases, a distinct thickening of the articular edges of some of the tarsus. In some cases there is a very sensitive periosteum, especially of the os calcis, as described in the gonorrheal feet.

But when these cases are carefully investigated there will usually be found a focus of suppuration, or decomposition, often unsuspected by the patient, but from which he is absorbing toxic products and probably has been for a long time. It may be a quiescent pus cavity in a tonsil resulting from an old forgotten tonsillitis, a chronic prostatitis, pyorrhea, sinusitis, chronic appendicitis, infected gall bladder, or a fermentative decomposition going on in the large intestine. I believe the latter is a much more frequent cause than is generally supposed. In many of these cases the urine is loaded with

indican, and a large percentage admit being hearty meat eaters. The worst case of this type I have ever seen was a butcher who ate, according to his own story, from a half to a pound of red meats at each meal.

Treatment

In the treatment of flat foot, and, in fact, the treatment of nearly all forms of painful feet, four things are essential. These are rest, supination, support and exercise. In addition to these, operation may be necessary, as in cases with exostoses or contracted tendons, but whatever be the condition under treatment, if the predominating symptom is pain, the first four procedures are essential. It is worth while to discuss them more fully.

Rest. When a patient presents himself complaining of pain in his feet, after making a diagnosis I ask him if he has tried giving them rest. Almost invariably I find that he has been obliged to stay at home for a few days, but was about the house more or less, usually in old, soft shoes during that time. Frequently a patient states that his feet are better on Mondays after having rested over Sunday. In other words, while the patient himself had noticed that rest, though incomplete, is of marked benefit, he has never followed out the suggestion logically and given his feet prolonged and absolute rest. I frequently see patients with gonorrheal arthritis and periostitis, with spurs on the bottom of the os calcis and feet swollen and exquisitely painful, hobbling about with a cane or two, trying to keep at their occupations, when they readily admit that they are comparatively free from pain when the feet are at rest.

It is necessary to impress upon the patient that rest means absolute and prolonged relief from weight-bearing, and that if he steps on his feet even once a day, he thereby forfeits much of the benefit secured by twenty-four hours in bed. The reason for that is that when the painful, relaxed, inflamed tissues composing the supporting structure of the arches of the foot are once stretched out by the superimposed weight, it takes many hours for them to regain tonicity and contractile power to counteract the traumatism. I have found it so difficult to impress upon the patient that sitting around the house in slippers is not rest, in the full sense of the word, that I have adopted the plan of fixing

the feet in plaster of Paris or some dressing that prevents the patient's stepping. The duration of absolute rest necessarily will depend upon the amount of pain and tenderness and the degree of pronation and relaxation. It varies from a week to a month, and can only be learned by experience with all sorts of cases.

Supination. If we study the dissected foot we notice at once that the pronated position puts all the tissues supporting the longitudinal and transverse arches on the stretch, while supination relaxes the plantar structures and allows the tibial and flexor muscles, which are chiefly concerned in lifting the weight from the inside toward the outside of the foot, to contract.

As the calf muscles contract through the tendon Achillis and throw the weight forward, the tibials and long plantar muscles acting at the same time, tip the weight outward toward the outer border of the foot, to the toes. Active supination, therefore, is a natural part of a normal step. Any attempt to exercise the muscles of locomotion with the foot in the pronated position is not only awkward but soon becomes painful. Conversely, when the foot has become pronated and painful by some disturbance of its mechanism, the only position in which the weak and over-stretched tissues supporting the structure can regain their tonicity and power and undergo contraction is in supination. No matter what the degree of distortion nor whether it is static, traumatic or inflammatory in origin, if it is pronated it can never be cured or relieved of pain until it has been supinated.

Support. After the weak or pronated foot has been supinated it needs support. The character of the support and how long it will be needed depends upon the strength of the supporting structures and the amount of traumatism that has been required to supinate the foot. I find that when the great majority of practitioners are confronted by weak or painful feet or "broken arches" they think of foot plates or "arch supports." That is a great mistake, for a very large percentage of such cases do not need them and another large percentage could not wear them if they had them. The earlier and milder cases, whether static, toxemic or inflammatory in origin, can be more successfully treated without them, and the most severe cases, with rigidly pronated feet, cannot wear them. That leaves only the cases of moderate degree

and the severe cases in which supination has been secured by force, in which they are useful.

It is my custom to first supinate all cases of painful feet of whatever character, using any means necessary, including tenotomies, osteotomies, excisions or osteoclasis, to get the foot into a supinated position. Then I enclose the foot in a comfortable plaster cast until the plantar tissues and supinator muscles have had a chance to contract, and all tenderness and pain have disappeared. In cases of simple weak foot, seven to ten days' rest, with the foot held in supination, will be all that is necessary, as preliminary preparation for support, while in severe, rigid cases requiring tenotomy, excision of a portion of the peroneals or scaphoidectomy, the foot may be kept in a plaster cast for two months.

Then comes the question of support. If it is simple weak foot a stout, straight-lasted, medium shank shoe with a modified heel (Hugh Owen Thomas), may be all that is necessary. The heel must be made to measure for each case. Four measurements are required, viz.: the distance from the insertion of the tendo Achillis to the anterior border of the scaphoid; the distance from the insertion of the tendo Achillis to the anterior border of the external malleolus; the height of the heel on the outer border, the last measurement plus from $\frac{1}{8}$ to $\frac{1}{4}$ inches to be the inner height of the heel. The height of the heel is a very important consideration. You cannot change from a very high heel to a very low one immediately. Frequently the patient is wearing too low a heel, thereby causing the stretching of the tendo Achillis, resulting in pain. In such cases raising the heel gives immediate relief.

The next group of cases, those with a little more trouble, require in addition to the modified heel, support of either longitudinal or transverse, or both, arches, which support can be easily supplied by cutting pads from resilient felt and sewing them to the under surface of a leather insole cut to fit the shoe. These pads pack down and after 5 to 15 days are reinforced.

In more severe cases plaster models are made of every foot to be treated. A baker's pan considerably larger than the foot, is half filled with lukewarm water and plaster of Paris is gradually and evenly dusted in. After sufficient plaster has been added and has taken up the water, the mixture is stirred until a perfect cream is pro-

duced. A small amount of table salt is dusted on and the mixture is stirred again. The patient sits on a chair on a platform with his hands under one knee to keep the leg and foot from moving. The most painful areas are marked on the foot with indelible pencil. Just as the plaster is about to set the foot is put in without exerting pressure. The plaster is brought up snugly against the inner border of the foot and in that position the plaster is allowed to set.

After a few minutes the foot is removed from the plaster by first abducting the leg at the knee. Do not allow the foot to remain in plaster too long and do not leave the patient with his foot in the plaster, as a burn might result from the heat developed by the reaction which takes place between the plaster, water and salt.

The plaster mold is allowed to dry and dusted with talcum, which should be rubbed in thoroughly. Some more plaster cream is prepared (but this time without salt), and poured into the mold. After several hours the mold is hammered off and a plaster model of the sick foot is obtained. The model is now ready to be "shaped." With a curved knife the model is trimmed. The knowledge of shaping a model can be obtained only by experience. A rigid foot can stand only very moderate changes, a flexible foot can be given a marked correction at the start. The model is then marked with indelible pencil and sent to the instrument maker with a notation as to the kind of metal to be used. The most satisfactory metal for foot plates is German silver of 18 to 20 gauge. In certain cases the support is made of metal and leather.

If the patient needs new shoes he should wait until his plates have been fitted. Let me add right here that the writer has shoes made to order for one patient in about 200. The plates must be fitted to the new shoes. They must be reshaped from time to time as the feet improve and as more support can be tolerated.

For patients who are not heavy and whose feet have reached the stage where the support does not have to be changed a celluloid plate which is very light may be used. It is made as follows: A sheet of thin leather is tacked smoothly to a plaster model. Then a creamy solution of celluloid in acetone is applied as a thin coat. A piece of gauze is laid on and when the celluloid is dry another coat with gauze is applied. Thin pieces of leather are used to build up the support either

transverse, longitudinal or both, and many layers of celluloid put on as the under layers dry. Steel reinforcements may be inserted. The tacks are removed and the edges trimmed.

Exercise. In all except the most rigid cases, and in elderly patients, exercises to strengthen the flexor muscles of the leg and foot are necessary to complete the cure and enable the patient eventually to discard the artificial supports. Patients past 50 years of age and rigid cases which have required operation generally have to use supports of some sort continuously, though many of these improve sufficiently so that the support may be incorporated in a shoe that is made to order. The first exercise required of all patients is walking with toes turned in. It is a noteworthy observation that very few "pigeon toed" patients present themselves for treatment of arch trouble. The triangular heels, with or without a lift under the inner edge of the sole, compels them to toe in at first, but the necessity of cultivating that gait is impressed upon the patient, and they are required to practice it fifteen minutes morning and night in stocking feet or moccasins, until finally they do it unconsciously, when the lift on the sole can be abandoned.

A very valuable exercise is one done in four distinct counts. With feet parallel and about three inches apart,—the patient is instructed to: 1. Rise to toes. 2. Spread heels apart. 3. Bring heels back. 4. Bring heels down.

A supination board is valuable. It is an isosceles triangle base down and several feet long which the patient walks on.

The patient should be directed to give the feet a cold bath, followed by brisk rubbing, and with one leg crossed over the other to successively go through the following: 1. Extend the foot. 2. Supinate. 3. Flex in supination. 4. Return to starting point. This procedure should be done vigorously 25 times twice a day.

Massage and hydrotherapy to improve the circulation are useful. Gradually the patient is encouraged to lengthen his walks until finally he can get about all day with comfort.

In a young patient with active muscles and in milder cases these measures, if thoroughly carried out, will complete a cure in from six to twelve months. In cases due to infection, as for instance, teeth, tonsils, sinuses or gonorrhea, the primary or residual infection must, of course,

be treated. If there is a toxemia developed from intestinal intoxication it must be stopped.

These patients do better on a diet free from meat, fish and eggs, and consisting chiefly of fruits, vegetables and cereals. Constipation must be treated when present.

In the rigid form of flat foot the treatment will necessarily begin with operative measures, for, as I have indicated, the foot must be supinated, and in order to do that tenotomy or rarely excision of the part of the peroneal tendons will be necessary, followed by forcible correction with a wrench or over a block. Excision of the scaphoid may be necessary.

In cases where pain is a very prominent factor a few days of absolute rest in bed, with the following lotion applied constantly, will be of great benefit.

Tincturæ Opii.....	30
Liq. Plumbi Subacetatis Dil.....	40
Tincturæ Arnicæ.....	50
Extracti Hamamelis.....	60

M. et ft. Lotion.
Sig.—Saturate gauze and apply, then hot wet-flannel dressings, oiled muslin and hot water bags. Turkish towel over all. Renew every three hours.

Rest in plaster casts is necessary for from two to three months, and the support will usually be worn permanently. The shoes should be modified so that the feet cannot again become pronated.

Gonorrheal Feet

Gonorrheal arthritis involving the tarsus has so many features of interest besides its casual relation to flat foot that it is worthy of special consideration. It is much more frequent than is commonly supposed; in fact, it is a frequent sequela of gonorrheal urethritis.

It usually develops during convalescence from the acute urethritis or during the chronic stage, and its onset is often so acute that its relation to the urethritis, which the patient considers practically cured and fails to mention, may be overlooked. The inflammation affects the periarticular structures and periosteum more than the articulations themselves, and the tissues supporting the tarsal arch become softened, boggy and relaxed, which accounts for the development of flat foot later.

One of the peculiarities of the disease is the predilection which it seems to have for the periosteum of the os calcis. In the chronic form the periosteum of the os calcis may be the only point of attack and the patient complains only of

pain in the heel on walking. Tenderness is found all over the os calcis, but especially at the tubercle on the under surface of the bone and at the attachment of the tendo Achillis. If the inflammation persists, and especially if the patient continues to walk in spite of the pain, sharp, bony spurs (exostoses) develop at one or both of these points and the patient is finally unable to walk on account of the agonizing pain.

The roentgenogram reveals the true condition of affairs, and when these exostoses are present the only treatment is to chisel them off. This almost invariably results in a cure.

Of course, whether we are dealing with an acute general arthritis of the tarsus, a flat foot or a perostitis of the os calcis, all traces of gonococci in the urethral tract must be cured before the feet will get well.

It is not to be inferred from the foregoing that all cases of "painful heel," so-called, are gonorrheal, because the writer has seen many that were not, but the association is so frequent that one should always look for gonococci, especially in cases with spurs on the os calcis. Baer, of Johns Hopkins, has demonstrated gonococci in the periosteal scrapings from a large percentage of these cases. Along with the treatment outlined above for painful and flat feet, the use of gonococcus vaccines may be beneficial.

There are undoubted cases of painful heel due to autointoxication of intestinal origin, and to operate without giving the patient instructions concerning the limitation of meat, fish and egg intake would be poor treatment. When a patient has a spur on one os calcis investigate the other very thoroughly, because he might return a year after operation with a spur on the other. Syphilis may cause these exostoses of the os calcis.

Morton's Metatarsalgia

This is a cramp-like, exceedingly painful affection of one or more of the metatarso-phalangeal joints. It occurs only in adults, and in women more often than in men. The pain comes on suddenly, and almost invariably when the patient has her shoes on. It is described as cramp-like and excruciating, often radiating along the foot and up the leg. The patient has to sit down at once, remove the shoe and rub and squeeze the front of the foot and work the toes, usually with relief. The attacks may occur

at long intervals or may be so frequent as to disable the patient. The trouble is caused by the flattening or relaxations of the anterior or transverse arch of the foot when compressed by the shoe, so that the ball has not room to spread (analogous to the pain produced in the hand by squeezing the metacarpophalangeal joints when relaxed). Third and fourth joints are most often the seat of the pain.

The fact that this affection occurs predominantly in women (I have never seen a case in a child and but very few cases in men), and while wearing shoes, convinced me long ago that the peculiar vanity of the sex, which leads them to crowd the foot into a shoe which is so narrow that it cannot allow for the natural expansion of the transverse arch when the weight falls upon the ball of the foot, is the chief cause of the trouble. This indictment can be brought especially against narrow shoes with high heels, in the wearing of which the weight must necessarily be borne by the metatarsal heads most of the time.

The treatment is indicated very plainly by an understanding of the etiology and pathology. The transverse arch must be restored and held there with the foot supinated to relax the plantar tissues, until all soreness is gone; then the arch must be supported by some device which prevents falling of the metatarsal heads, in a shoe which will allow natural expansion of the ball of the foot. A specially cut felt pad sewed to the bottom of a leather insole or a metal support for the transverse arch will relieve the trouble, and with the aid of the exercises given below and correction of the cause will usually affect a cure.

For the accompanying callouses the following will be found of benefit:

Acidi Salicylici.....gr. xxx
Fletracti Cannabis Indicæ.....gr. xx
Flex. collodion.....drachm ss

M. et. ft. sol.
Sig.—Apply externally with camel's hair brush three times a day for several days, then soak in hot water.

If a piece of felt cut like a life preserver is secured so that the callous is under the hole relief will be affected more quickly.

Special stress should be laid upon the patient's never stepping for many months, except when wearing the shoes and support. They should be put on before getting out of bed and taken off the last thing before getting in, because one re-

currence may undo the benefit of months of treatment.

Exercises: 1. The patient should practice curling the toes downward as though grasping something. 2. She should put her foot against a corner of a chair and press the anterior portion against it 25 times, twice a day. 3. She should get a number of different sized marbles and practice picking them up from the floor with her toes. Ten or fifteen years ago it was thought necessary to excise the head of the offending metatarsal bone, but that mutilates the shape of the foot and is unnecessary.

Arterio-Sclerosis of the Vessels of the Foot

This is a variety of painful feet which belongs in a class by itself. It usually occurs in older people and is associated with arterial degeneration, and is undoubtedly caused by sclerosis of the smaller vessels of the feet. It is the most obstinate and hopeless type of painful feet. The feet look normal except that they are usually blue or purple and cold. The pain may be intense and is relieved by nothing but rest and elevation. These patients frequently say they are never free from pain except when lying down. There is usually high blood pressure, with high diastolic pressure and other signs of arterial degeneration. The prognosis is bad. The treatment of the general condition is very important. Circulatory tonics, vasodilators, Donovan's solution, etc., are to be tried. For the local burning or itching the following is recommended:

Ichthyolis 40
Glycerini 10
Aq. Destillatæ..... 50

M. et ft. sol.
Sig.—Apply with brush three times a day.

The treatment of the feet consists of padded insoles or plates, giving very gradual support, elastic bandaging or elastic stocking.

Differentiation of tubercular disease of the tarsus from other forms of painful feet may be necessary. This should not be difficult when we carry clearly in mind the clinical picture of tuberculosis: 1. The diffuse swelling, extending even to the plantar tissues. 2. The induration, due to the characteristic tubercular exudate. 3. The tendency to abscess formation along with the evidence of destructive disease. 4. Pain and muscular contraction on attempted motion. These signs and symptoms make up

(Continued on page 128.)

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1915-16

PRESIDENT.....WILLIAM L. NOBLE, Chicago
 PRESIDENT-ELECT.....E. B. COOLLEY, Danville
 FIRST VICE-PRESIDENT.....C. F. NEWCOMB, Champaign
 SECOND VICE-PRESIDENT.....R. A. MCCLELLAND, Yorkville
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARF, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksnville
 D. R. MACMARTIN.....Chicago
 C. B. KING, *Chairman*.....3938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, *Secretary*.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

FEBRUARY, 1917

Editorials

CHANGE OF DATE—ANNUAL MEETING AT BLOOMINGTON— ONE WEEK EARLIER

A circumstance has arisen over which the President, the Council nor the Committee of Arrangements had no control, which, unfortunately, makes it imperative that the date of the Annual Meeting be changed. The President, with the concurrence of the Council, has set the date of the Annual Meeting one week earlier—May 8, 9 and 10.

We hope this will make no material difference with the attendance, and that particularly those members reading papers will be able to attend.

NOTICE.

The by-laws provide that all members in arrears on Dec. 31st of any current year shall be dropped from membership. Accordingly some 500 members of the Illinois State Medical Soci-

ety will not receive their February JOURNAL and will not be protected by the Medicolegal Committee in case of malpractice until they have been reinstated.

If you are not sure of your standing in your county society, please take the matter up with your secretary and see that he gets busy at once.

W. H. GILMORE, Secretary.

HEALTH INSURANCE.

There seems to be no let up on the agitation of compulsory health insurance. There does seem to be a little less assurance that it is wanted in America. In fact, no one seems to be quite positive that it is a necessity except the "welfare" workers. Mr. Gompers of the Federation of Labor does not seem to think it necessary, and does think it has dangers even for the workmen whom it is designed to benefit.

The idea seems to have originated in Europe, and does not seem to have been either popular or beneficial there, if we can rely on those who have witnessed its workings across the water. Yet there seems to be a very strong effort to force it upon us here, by those societies that are interested in the enactment of the so-called model health bill.

With all the agitation upon this subject during the last year, but few seem to know just what it means or what it will include, and few, if any, aside from the large employers of labor, seem to understand that it will be another burden for the taxpayer, as it is designed that at least 20 per cent. of the cost will come from the general tax fund. The farmers, the small business men, the professional men, who are not employers of labor and who are in no manner benefited, will pay at least 20 per cent. of the burden.

The proposed bill is so complex and difficult of understanding that few have really gone into its provisions. The medical provisions, or at least the medical fee table, so far as we know, has not yet been written into the bill, and those interested are not inclined to talk much on this feature.

We feel that the underlying principle is paternalism, originated by that class of organizers who have been interested in other charities (so-called). Paternalism and pauperism are very closely associated in our mind. In fact, there can be no excuse for one without the other. The United

States is not the home of either, and we feel neither should be tolerated in a free liberty-loving republic.

The medical profession is interested because it must bear a large portion of the burden, and it must have something to say as to what the recompense shall be. In Europe the medical profession was asked to carry the medical portion of the health insurance load for a recompense that was a mere beggarly pittance. The medical profession of this country is already loaded with charities, and must not assume another of such vast proportions, simply to enrich the coffers of the large corporations employing labor, or the insurance companies.

If this country must be the guardian of its laborers and there must be a compulsory health bill, let it be a fair one at least, and place the taxation where it belongs. If there must be a compulsory health bill, let there be a corresponding fee bill, and let the profession say what it will be paid. It would seem to us that if the laborers were paid a wage sufficient for the respectable maintenance of their families, and sufficient for the education of their families into good citizenship, it would prove unnecessary for them to become wards of the state.

We believe the so-called model compulsory health insurance bill is objectionable from many standpoints, objectionable to the medical profession, objectionable to those who would come under its compulsory insurance clauses, objectionable to that large body of taxpayers who, being taxed to maintain it, still will not be in any way benefited. Neither do we believe that society will be benefited by a law which creates paternalism.

IS CANCER HEREDITARY OR CONTAGIOUS?

We have had occasion several times to quote statistics from life insurance companies. Life insurance companies are vitally interested in mortality statistics, and we are indebted to them for much data which is very valuable, and which includes both the data from their medical departments and from their actuaries.

Mr. Arthur Hunter, who is now actuary for the New York Life Insurance Company, has undertaken to determine if the data of several large insurance companies would indicate heredity in cancer. This study was undertaken largely be-

cause census reports indicate an increase of the death rate from cancer of about 30 per cent in fifteen years, and because life insurance mortality reports have shown cancer to be the third most important cause of death among men at ages over forty-four, and the leading cause of death among women of corresponding ages. This seems alarming, but, no doubt, some of the apparent increase in deaths from cancer is due to a more correct diagnosis than formerly, and also to a more complete reporting of deaths and causes of death.

Mr. Hunter thinks that a study of many thousands of cases does not indicate heredity or contagiousness, and that there is no ground for believing that either is a factor in cancer. In a group of 20,000 applicants, it was found that in 488 cases one parent only had died from cancer, while in four cases both parents had died of cancer. Of these 488 cases, where one parent only had died of cancer, in 100 cases, or 20 per cent, the other parent had also died, but of other causes and at an average age of 13 years younger than the parent who died of cancer. In 115 cases, or 24 per cent, the other parent had also died from other causes at an average age of 14 years older than the parent who died of cancer. In 273 cases, or 56 per cent, the other parent was living and was not cancerous. The average of these 273 was 51½ years greater than the age at death of the 273 parents who had died of cancer.

Mr. Hunter says, "The significant fact in this investigation is that there were only four cases out of the 20,000 applicants in which both parents died of cancer."

Another group where both parents had died of cancer prior to date of application for insurance gave the following data:

Of 472 grandparents of these cases, the cause of death was given in 234 cases of which only 2 were from cancer. In 184, the cause of death was stated as "old age," the average age at death of which was 82. In 72 of these grandparents, the cause of death was not known, but the average age was 62.

A synopsis of these cases follows:

472 Grandparents.

Deaths from:	
Known causes (including old age).....	232
Cancer	2
Unknown causes	227
Living	11

236 Parents, all died of cancer.
314 Sons and Daughters.

Above age 40—Death from:

Known causes	27
Cancer	0
Living	287

Above age 50—Deaths from:

Known causes	12
Cancer	0
Living	137

301 Brothers and Sisters of Parents.

Deaths from:

Known causes	200
Cancer	9
Unknown causes	27
Living	74

Several other groups were selected and the family histories traced as far as possible with similar conclusions.

In the conclusion of his paper, Mr. Hunter states: "It would be rash to state that the low percentage of deaths from cancer among the groups of those with a family history of that disease was an indication of resulting immunity.

* * * Certainly the statistics show that a man or a woman, one or both of whose parents died from cancer, is no more likely to die from that disease than those whose family history was free from that blemish."

NEW AMSTERDAM CASUALTY COMPANY.
SURETY-CASUALTY.

59 John St., New York City.

7 St. Paul St., Baltimore, Md.

George H. Nickels, Claim Adjuster, 175 W. Jackson Blvd., Chicago, Ill.

To Our Policy Holders.

Kindly disregard instructions and list of surgeons formerly sent you.

We have appointed Dr. Orlando F. Scott, Chief Surgeon of the Company, who has service stations throughout the city of Chicago, in charge of competent doctors, day and night. In addition to this the doctor has made arrangements for injured employes with the best hospitals.

In case of accident to an employe in course of his employment, no matter how slight the injury may be, call Dr. Scott's main station, Lawndale 4968, and he will immediately arrange for the necessary medical attention.

Please have our medical arrangement explained thoroughly to all your employes in all languages as may be necessary, and kindly instruct your superintendents and foremen to see that this is done.

Please instruct your superintendents and foremen to impress upon your employes the fact that if they do not accept Doctor Scott or a physician recommended by him, we will refuse to pay for any part of the medical attention.

Your co-operation in this matter will undoubtedly prove beneficial in holding your premium to the minimum.

Kindly acknowledge receipt of our letter on the enclosed card.

We should be glad to have you or your representative visit any of Dr. Scott's stations.

Very truly yours,

NEW AMSTERDAM CASUALTY COMPANY,

Chicago Office, 1047 Insurance Exchange Bldg.
Telephone, Wabash 1656.

* * *

It would be difficult to find a better reason for opposing compulsory health insurance than the above letter sent out by this insurance company. A physician cannot well serve the insurance company and the sick public.

Illinois is one of the states which had the joker written into its workman's compensation act, under which an insurance company can force any contract practice man upon workmen, no difference who he may be or how incompetent. They also select the best (?) hospitals.

Our legislative committee might take the opportunity to propose an amendment to the Illinois law.

MALPRACTICE CLAIMS CONSEQUENT
UPON TREATMENT OF FRACTURES.

R. J. FOLONIE,

CHICAGO.

Actions for claimed malpractice until the last few years were based in greater part upon treatments of fractures. During the last five years the proportion of cases consequent upon treatment of fractures has been slightly less, due to an increase of claims upon cases of obstetrical attendance, operations claimed to have been performed without consent of the patients, etc. The nature of the claims seems to proceed somewhat in cycles, their existence often being predicated upon some favorable verdict for a patient, which gives rise to a series of cases based upon hopes of a like result. My experience leads me to believe that during the next five years there will be a recrudescence of claims in fracture cases based upon mistaken diagnosis or failure to put fractured parts into correct apposition, basing the claim of negligence upon failure to resort to x-ray examination. A consensus of lay and judicial opinion is rapidly forming, censuring a physician for failure to make a fluoroscopic ex-

amination or have a plate made, and I anticipate that greater and greater strictness will be observed by the courts in imposing this obligation upon the attending physician. The tendency is not only to require a plate or fluoroscopic examination in making diagnosis, but also to require such examinations from time to time in the progress of the treatment to determine that proper apposition exists, and that the means taken are in fact progressing effectually to a desirable result. The excuse which has proven reasonably effectual in the past, that the physician did not have a machine available, will be looked upon with less and less favor, and I anticipate that eventually there will be a holding that a physician who does not have a machine himself, or secure the use of one, will be held to be incompletely equipped for the proper care and treatment of the injuries here under discussion. There has been a determination of one case in this state, where the liability was imposed upon a physician because of failure to have a plate made (the result proving unfortunate), and while the court places its opinion upon testimony that a request was made upon the physician to have a plate made, which he refused, it is not unreasonable to expect that a broader ruling will be made in another case, finding liability for failure to secure x-ray examination, even in the absence of a request from the patient. The rule of the law is that a physician must use ordinary care, "having in consideration the advanced state of his profession at the time." The dissemination of wider knowledge on the subject among the laity and the profession is creative of a condition whereby the physician is being forced to the use of this means of knowledge, as much for his own protection as for the benefit of the patient. Mistakes of diagnosis in cases of impacted fractures of the neck of the femur, Pott's fracture, etc., have been repeatedly excused in the past because of the difficulty of diagnosis (or rather ease of a mistake of diagnosis), and the physicians have been repeatedly discharged from responsibility where the reduction of a Colles' fracture was not properly accomplished. The difficulties attendant upon a successful defense of claims of patients in these cases are being daily enhanced, and will in the near future become almost insuperable. I strongly urge upon the profession a freer resort to examinations through the x-ray as calculated to minimize their tribulations.

SYMPOSIUM ON THE MEDICAL PROFESSION.

The Medical Review of Reviews, 206 Broadway, New York City, published in its January issue a "Symposium on the Medical Profession." For many years it has been more or less the custom to make sarcastic remarks concerning the medical profession and to belittle the work which it is doing. The Review has taken upon itself the task of getting in touch with many of the most prominent lay men and women of the world, and to learn from them their opinions concerning the medical profession of today.

"What's the matter with the doctor?" is the question that was propounded, and replies have been received from such men as Andrew Carnegie, John Wanamaker, Nathan Straus, Theodore N. Vail; from such authors as Jerome K. Jerome, Israel Zangwill, the Princess Troubetzkoy, William Dean Howells, Gertrude Atherton, Robert W. Chambers, Alice Hegan Rice, Margaret Deland, Theodore Dreiser, George W. Cable, Julian Hawthorne, Ellis Parker Butler, Bruno Lessing, Booth Tarkington, George Kennan, Ernest Thompson-Seton; from such poets as Edith M. Thomas, Bliss Carman, Rose Hartwick Thorpe, Wallace Irwin, Witter Bynner, John Kendrick Bangs (these last two contributions being in verse); from such folks of the stage as Minnie Maddern Fiske, Wilton Lackaye, James K. Hackett, William C. de Mille, Charles Rann Kennedy, Eugene Walter, John Philip Sousa; from such educators as Andrew D. White, David Starr Jordan, E. Benjamin Andrews, the late Booker T. Washington, Charles F. Thwing; from such inventors as Nikola Tesla and Hudson Maxim; and from editors, politicians, cartoonists, theologians, et al., throughout the world.

We believe this symposium will prove interesting, and if properly distributed may prove of distinct benefit to the profession.

LUTHER D. BRADLEY, CARTOONIST.

We will miss the familiar line that has appeared so often, "By courtesy of Mr. Bradley," under the excellent cartoons that we have published in the JOURNAL. Clean, kindly, uplifting, his cartoons reflected his character and portrayed a mastery of artistic technique that placed him in the front rank of his profession. It is not generally known that, though an American of New

England lineage, he first attained fame through his cartoons in Melbourne, Australia. This gave him a wide reputation throughout the English-speaking world.

As an illustration of the difficulties that beset the choice of subjects, Mr. Bradley related to the writer an incident that caused him some embarrassment. He had purposely taken an almost impossible name for the subject of one of his comic pictures, but when it appeared an outraged individual stormed into his office brandishing the cartoon and claiming that he was libeled, and his friends were making life miserable for him. The picture was a good likeness of the aggrieved party with the "impossible" name!

The *Chicago Daily News* will publish a volume of selected cartoons by Mr. Bradley, printed by Rand, McNally & Co., bound in cloth and on high grade paper. It is intended as a memorial and in spite of the cost will be sold at \$1 the copy. It may be a good investment for the table in the physician's reception room. The volume is to appear February 15.

TO THE WOMEN PHYSICIANS OF ILLINOIS.

A very cordial invitation is extended to you to spend the week of February 12 to 16 in Chicago and attend the clinics and entertainments which we are planning for our professional sisters.

If you can come and spend a few days with us we should be very glad to become better acquainted and to make your visit pleasant and profitable. Will you kindly advise Dr. Edith B. Lowry, 32 North State street, Randolph 345, chairman of the Hospitality Committee, when we may expect you.

We anticipate a happy time in the renewal of old friendships and the making of new ones.

Headquarters have been established at the College Club Rooms, Stevens building, 16 North Wabash avenue, where mail, telegrams, etc., may be sent, and bulletins will be posted daily as regards extra clinics, entertainments, etc. Members of the Reception Committee will be in attendance each day.

Faternally yours

THE MEDICAL WOMEN OF CHICAGO.

PARTIAL SCHEDULE FOR CLINICAL WEEK.

Monday, February 12, 1917.

Nose and Throat.....Dr. Katherine Rich, 8 a. m.
Tabitha Hospital, Francisco and Cortez Sts.

Ear, Nose and Throat.....
.....Dr. Adelaide Duncan, 2 to 4 p. m.
Post Graduate Hospital

Gynecology.....Dr. Ida Bostick, 2:30 p. m.
Hahnemann Hospital, 2814 Ellis Ave.

Nose and Throat.....Dr. Ione Beem, 3 to 5 p. m.
Chicago Eye, Ear Hospital, 235 W. Washington St.

Surgery.....Dr. Ethel Rice, 8 a. m.
German American Hospital
X-Ray....Miss Alma H. Brindley, 9 to 11 and 1 to 4
Wesley Hospital, 24th and Dearborn Sts.
Operative Nose and Throat.....
.....Dr. Lillian Taylor, 3 to 5 p. m.
Mary Thompson Hospital

Tuesday, February 13, 1917

Operative Gynecology.....
.....Dr. Bertha Van Hoosen, 8 to 12 a. m.
Cook County Hospital, Wood and Harrison Sts.
Operative Gynecology.....
.....Dr. Mary Kearsley, 8 to 12 a. m.
Mary Thompson Hospital, Adams and Paulina Sts.
Anaesthesia.....Dr. Josephine McCollum, 8 to 12 a. m.
Mary Thompson Hospital, Adams and Paulina Sts.
Eye.....Dr. Adelaide Duncan, 9 to 11 a. m.
Post Graduate Hospital, 24th and Dearborn Sts.
MedicineDr. Armina Hill, Op., 10 to 12 a. m.
Mary Thompson Hospital, Adams and Paulina Sts.
Nose, Throat and Ear. .Dr. Lillian Taylor, 3 to 5 p. m.
Mary Thompson Hospital, Adams and Paulina Sts.
X-Ray
....Miss Alma H. Brindley, 9 to 11 and 1 to 4 p. m.
Wesley Hospital
Gynecology and Obstetrics.....
.....Dr. Clara Ferguson, 3 to 5 p. m.
Mary Thompson Hospital
Visit to Hull House and Tea, 3 p. m.
Dr. Rachelle S. Yarros

Wednesday, February 14, 1917

Operative Gynecology.....
.....Dr. Bertha Van Hoosen, 8 to 12
Mary Thompson Hospital
Anaesthesia.....Dr. Josephine McCollum, 8 to 12
Mary Thompson Hospital
Surgery.....Dr. Ethel Rice, 8 a. m.
Columbus Hospital
Operative Gynecology....Dr. Julia Strawn, 9:30 a. m.
Hahnemann Hospital, 2814 Ellis Ave.
Bacteriology.....Dr. Ruth Tunnicliffe, 10 a. m.
Memorial Institute for Infectious Diseases,
Harrison and Wood Sts.
Diagnostic Gynecology.....
.....Dr. Julia Strawn and Dr. Lillian Thompson
Hahnemann Hospital
Pediatrics.....Dr. May Micheal, 1 to 3 p. m.
Mary Thompson Hospital
Nose and Throat....Dr. Adelaide Duncan, 2 to 4 p. m.
Post Graduate Hospital
Eye.....Dr. Ione Beem, 2 to 3 p. m.
Chicago Eye and Ear Hospital
Tuberculosis.....Dr. Katherine Rich, 3 to 5 p. m.
Municipal Tuberculosis Dispensary,
Ashland and Blackhawk St.
X-Ray....Miss Alma H. Brindley, 9 to 11 and 1 to 4
Wesley Hospital
Intravenous Administration of Salvarsan and the
Making of Autogenous Vaccines.....4 to 6 p. m.
National Pathological Laboratory,
5 South Wabash Ave.

Medical Women's Club Banquet.....6 to 8 p. m.
College Club Rooms
Guests of Honor: Dr. Adah McMahan, LaFayette,
Ind.; Dr. Laura H. Brandon, Iowa City, Iowa

Program Chicago Medical Society Meeting, 8 p. m.
Marshall Field Annex

Pain and Vomiting in Biliary Tract Infections....
.....Dr. Charles Louis Mix
Discussion: Dr. Joseph A. Catts, Dr. L. L. Mc-
Arthur, Dr. T. A. Davis

The Psychoses of Adolescence.....
.....Dr. Harriet C. B. Alexander
Discussion: Dr. Chester H. Keogh

Tumors of the Breast.....Dr. Frederic A. Besley
Discussion: Dr. Harry M. Richter

Thursday, February 15, 1917

Operative Gynecology.Dr. Mary McEwen, 9 to 11 a. m.
University of Illinois, Congress and Honore Sts.
Diseases of the Gums.....

.....Dr. E. Mary Lohmann, 10 to 11 a. m.
University of Illinois

X-Ray.....Miss Alma H. Brindley, 9 to 11 and 1 to 4
Wesley Hospital

Electro-Therapeutics.Dr. May Cushman Rice, 10 to 12
Illinois School of Electro-Therapeutics,
30 East Randolph St.

Surgery.....Dr. Alice Conklin, 2 p. m.
Norwegian Tabitha Hospital

Children's Diseases.....Dr. Grace Campbell, 2 p. m.
Tabitha Hospital

Gynecology.....Dr. Mary Hanks, 2:30 p. m.
Hahnemann Hospital

Medical.....
Dr. Blockwood and Dr. Lillian Thompson, 2:30 p. m.
Hahnemann Hospital

Obstetrics.....Dr. Rachele Yarros, 3 to 4 p. m.
Chicago Lying-In Hospital

Nose and Throat.....Dr. Ione Beem, 3 to 5 p. m.
Chicago Eye and Ear Hospital

Operative Gynecology..Dr. Alice Conklin, 3 to 5 p. m.
Tabitha Hospital

Physiologic Therapeutics.....
.....Dr. Lena K. Sadler, 4 to 6 p. m.
Institute of Physiologic Therapeutics
32 North State St., Room 300

Psychopathic Hospital.....Court session, 10 to 12
Judge T. F. Scully
Stock Yards, 2 o'clock Luncheon, Inspection of
Armour Plant

Friday, February 16, 1917

Operative Gynecology.....
.....Dr. Bertha Van Hoosen, 8 to 12
Cook County Hospital

Operative Gynecology....Dr. Julia Strawn, 8:30 a. m.
Hahnemann Hospital

Pediatrics
Dr. Cobb, Dr. Adelaide Hoeffel and Dr. Agnes Fuller
Hahnemann Hospital

Operative Gynecology....Dr. Clara Seippel, 8:10 a. m.
Wesley Hospital, 24th and Dearborn Sts.

X-Ray....Miss Alma H. Brindley, 9 to 11 and 1 to 4
Wesley Hospital

Gynecology and Obstetrics.....
.....Dr. Clara Ferguson, 3 to 5 p. m.

Mary Thompson Hospital

Operative Nose and Throat.....
.....Dr. Lillian Taylor, 3 to 5 p. m.

Mary Thompson Hospital

Twilight Sleep Clinic.....Dr. Clara Ferguson
Mary Thompson Hospital

Saturday, February 17, 1917

Municipal Tuberculosis Sanitarium, 10 a. m. Luncheon
and Inspection of Institution

Dr. Jennie B. Clark will entertain the visiting
women at dinner at the College Club, Wednesday
evening, Feb. 14, at 6 o'clock.

Correspondence

Feb. 2, 1917.

Hon. Jno. A. Richert, Chairman Finance Com-
mittee, City Council, City Hall, Chicago, Ill.

Dear Sir: I am in receipt of a form letter
from Dr. C. P. Caldwell relative to Diagnostic
Stations in various parts of the city in connec-
tion with the Chicago Municipal Tuberculosis
Sanitarium.

Any effort directed toward the relief of this
dread malady free of cost to the poor of our city
meets with my hearty approval.

However, I note that this letter states, "While
these stations are primarily for the poor they
will be conducted in such a manner as not to
pauperize any patient."

If the services of these stations are to be in-
differently rendered to rich and poor alike, I
cannot help but feel that it is a gross error and
very unfair to us as members of the medical pro-
fession, when the best years of our lives have
been spent developing various diagnostic labora-
tories and have, as in my case, their all invested
in this line.

It seems to me a great injustice for the city
of Chicago to do this work free and thereby
take away a large part of our income derived
from those who are able to pay for our services
and ultimately pauperize us.

I believe that if these stations are opened to
the public without suitable restrictions, they will
be greatly abused and differential diagnosis will
call for skiagraphs of any condition or part of
the body.

In fairness to those of us who would be
affected in the legitimate pursuit of our calling,
I ask that you use your influence to prevent the

abuse of this privilege by those who are in a position to pay for this service.

Very respectfully,

J. H. CARPENTER, M. D.

PITUITRIN IN TWO STRENGTHS.

The pituitary extract, formerly known as "Pituitrin" and supplied in ampoules, will hereafter be designated "Pituitrin O." A second preparation of the pituitary gland, bearing the title of "Pituitrin S," is now announced. Pituitrin S is approximately twice the strength of Pituitrin O. Both products are manufactured by Parke, Davis & Co.

Pituitrin O (obstetrical) is intended primarily for use in delayed parturition due to uterine inertia. It has been called "an indispensable item in the armamentarium of the obstetrician."

Pituitrin S (surgical) is indicated specifically in the treatment of post-operative intestinal paresis, vesical atony, hemorrhage, shock, etc. It is of the utmost utility in the hands of the surgeon and internist.

Pituitrin O is supplied in ampoules of 1 mil (1 Cc.), and $\frac{1}{2}$ mil ($\frac{1}{2}$ Cc.). Pituitrin S is supplied in ampoules of 1 mil (1 Cc.) only.

Public Health

POLIOMYELITIS CONFERENCES.

STATE BOARD OF HEALTH INAUGURATES IMPORTANT SERVICE—GOVERNOR LOWDEN TO OPEN CONFERENCE IN SPRINGFIELD.

Probably the most important service ever rendered by the Illinois State Board of Health is being inaugurated in a series of clinical conferences and meetings for the purpose of overcoming the serious consequences of the prevalence of infantile paralysis during the past year, and in preventing an epidemic of this disease which may reasonably be anticipated in Illinois during 1917.

Beginning at Atwood January 31, 1917, these conferences and meetings will be held in 28 Illinois cities and towns with an itinerary so arranged that every community in which the disease prevailed last year will be reached.

During 1916 there were at least 1,000 cases of infantile paralysis in Illinois, leaving behind them hundreds of children who will suffer permanent paralysis or most distressing deformity unless they receive that form of scientific treatment such as has been developed within the past few years. With such treatment there is reason to anticipate that the vast majority of these unfortunates will be restored to useful lives.

Recognizing the urgent need for this treatment, the state board of health selected one of its most competent medical officers and sent him east to study the methods being employed in overcoming the damage left in the wake of the New York epidemic of infantile paralysis of last summer, and a program was arranged so that this special information might be taken into every section of Illinois.

One of the first official acts of Governor Frank O. Lowden in assuming office at Springfield was the endorsement of this program, in which both the Governor and Mrs. Lowden had manifested the keenest interest. This interest is shown by the fact that the governor will personally open at least one of the conferences and will keep in touch with all that are held.

In each of the 28 communities the program will consist of a clinical conference with physicians to be held both morning and afternoon, to which the members of the medical profession are invited to bring the children who have suffered from infantile paralysis and who, as a result, have become paralyzed or crippled. In the evening a public meeting will be held in which the attention of the people will be called to the fact that Illinois has every reason to anticipate a serious epidemic of infantile paralysis during 1917, that this may be prevented or its extent reduced by a broad campaign of education, while the pitiful after-effects of the disease may be minimized by early scientific treatment.

The clinical meetings will be held under the auspices of the county medical societies of the various communities, while the mayors and health officers are co-operating to make the public meetings distinctly successful.

The State Board of Health has the name of every physician who attended a case of infantile paralysis during the past year and personal letters have been sent to such physicians asking their co-operation in these community conferences. The response has been more than gratifying, while the disposition of mayors, health officers and county medical societies to encourage the work indicates clearly the general recognition of its importance. The campaign, incidentally, has the strong endorsement of the most prominent orthopedic surgeons of the middle west, who declared that with our newer and better methods of treatment much of the suffering and disability

following in the wake of infantile paralysis may be overcome.

One of the pathetic features of this campaign has been the large number of letters received by the State Board of Health from persons who are crippled or paralyzed from infantile paralysis suffered in years past. They write to inquire if they too may avail themselves of these clinical conferences, and while their chances of recovery are not as bright as in the more recent cases, it is believed that scientific treatment, even with these of long standing, will not be without beneficial result.

In Chicago the treatment of sufferers from poliomyelitis will be left to an organization recently formed and headed by Dr. Henry Bascom Thomas and Dr. Ludvig Hektoen, but the State Board of Health will interest itself in the residents of Cook county outside of Chicago, a clinical conference for these patients to be held in Chicago for March 8 to 13.

The first meeting is to be held at Atwood with co-operation of physicians from a part of Piatt county and from Moultrie and Douglas counties, in which there have been 16 cases of infantile paralysis during the past year. In Decatur, February 1 to 3, there will be a conference for DeWitt, Macon, Christian, Logan and Shelby counties, and a part of Moultrie county. In this district there have been 46 cases.

The next meeting at Mattoon February 5 and 6, and this is designed for the 19 cases in Coles, Edgar, Douglas and Effingham counties and parts of Cumberland and Moultrie counties. A meeting for Lawrence, Richland, Clay, Wayne, Edwards and Wabash counties and parts of Crawford and White counties, in which there have been 6 cases, will be held at Olney, February 8 and 9.

On February 10 there will begin a three-day conference at Harrisburg for the counties of Saline, Gallatin, Hamilton, Hardin, Pope, Massac and Johnson counties and part of White county, in which there have been 4 cases of infantile paralysis.

Cairo will be visited on February 13 with a conference for Alexander, Pulaski and Union counties and parts of Williamson, Johnson, Massac, Pope, Hardin and Jackson counties. This district has had six cases of the disease. At Benton on February 14 the counties of Frank-

lin and Jefferson and parts of Williamson, Jackson and Perry counties will be represented with 6 cases.

One of the most important conferences will be held at East St. Louis February 15 to 17, reaching the counties of St. Clair, Madison, Bond, Fayette, Clinton, Marion, Washington, Randolph and Monroe and parts of Perry, Greene, Jersey, Macoupin and Montgomery, in which there have been 38 cases. On February 19 a conference will be held at Quincy for Adams county and parts of Hancock, Brown, Pike and Schuyler, with 8 cases.

The three-day meeting at Springfield, beginning February 20, will be opened by Governor Lowden. This section, in which there have been 18 cases, is made up of Greene, Cass, Menard, Scott, Logan and Sangamon counties, a part of Mason, Schuyler, Brown, Calhoun, Christian and Montgomery and Pike counties.

On February 23 there will be a meeting at Galesburg extending over three days to reach the counties of Knox, Warren, Henderson and McDonough and parts of Hancock and Fulton counties, in which there have been 19 cases.

Henry, Stark and Bureau counties, with 12 cases, will be reached by a meeting to be held at Kewanee February 27.

La Salle county is the only one in which more than one conference will be held. On February 28 a three-day conference will be held at La Salle, reaching parts of La Salle, Bureau and Putnam counties, having 21 cases, while another conference will be held in Ottawa on March 2, covering another section of La Salle county, in which 18 cases have occurred.

The largest number of cases in the state is represented at the three-day conference, to be held in Streator, beginning March 3, covering the remainder of La Salle county and Marshall, Livingston, Ford and parts of Grundy and Putnam counties. There have been 56 cases in this district.

A conference at Joliet on March 7 will reach Will and parts of Grundy and Kendall counties, with 4 cases.

The conference to be held in Chicago beginning March 8 and lasting five days, will reach that part of Cook county lying outside the city, together with DuPage and Lake counties and a part of Will county, a territory which has had

38 cases of poliomyelitis. March 14 and 15 Rock Island, Whiteside and Mercer and parts of Henry and Bureau counties, with 17 cases, will be reached by a conference in the city of Rock Island.

At Freeport on March 16 the counties of Jo Daviess and Stephenson and parts of Carroll and Winnebago counties, with 9 cases, will be represented.

Ogle county and part of Lee and Carroll counties are to be reached by a meeting at Oregon on March 17. There have been 13 cases in this district.

The Rockford meeting on March 19 will deal with 8 cases in Boone county and in parts of Winnebago and McHenry counties.

Four days will be given to a conference at Geneva, representing Kane county and parts of McHenry and DeKalb and Lee counties, in which there have been 23 cases.

Kankakee and a part of Will, Grundy, Iroquois and Ford counties, with 11 cases, will be the center of a conference at Kankakee on March 24.

A meeting at Champaign on March 26 and 27 will deal with Vermilion county and parts of Ford, Iroquois and Piatt counties, in which there have been 17 cases.

The last two meetings of the campaign will be held in Bloomington and Peoria. The former will be held March 28 and 29, dealing with McLean county and parts of Ford, DeWitt, Woodford and Logan counties, with 15 cases.

The Peoria meeting on March 30 and 31 has been arranged for the counties of Peoria and Tazewell and parts of Mason, Woodford, Stark, Marshall and Fulton counties. There have been 22 cases in this district.

T. B. NOTES.

Many patients are given stomach remedies when they need tuberculosis treatment. Every patient with gastric symptoms should be examined for tuberculosis.

If a fee is charged for an examination, that examination should be done to the best of our ability, and fewer cases of incipient tuberculosis would escape us. (Two hundred cases of pulmonary tuberculosis had consulted 451 physicians, and in 14.2 per cent. of all the consultations, no physical examination was made.—*Ohio State Journal*, Dec., 1916.)

An arrested case of tuberculosis on returning to work should preferably return to his former occupation, unless this occupation in itself is a predisposing factor of the disease. Telling arrested cases, previously employed in indoor occupation, to seek outdoor work is not always the best advice, as they may not

be able to withstand the hardships incident to most of these occupations.—*Ford, Med. Record*, Jan. 30, 1916.

The only danger of not making a diagnosis of tuberculosis early is that the patient will die, but before dying he will infect others.

Points of Attack of Tb.—According to Kober, infection by inhalation is the most frequent method. The germs may be propelled into the atmosphere by talking, coughing or sneezing. The dangerous zone about a patient with Tb. extends three feet in every direction. The most frequent way is to incorporate the bacilli through the digestive tract. Eating utensils may be the media of transmission; milk and meat are frequently infected. Among the things which Kober indicts are: allowing babies to creep on a dirty floor, long skirts and unsanitary dwellings. Flies are also a frequent source of infection. Damp soil and houses predispose to Tb. City dwellers should remember that the greater the park space in their communities the less will be the Tb. The death rate has dropped from 326 per 100,000 in 1880 to 147.6 in 1913.—*Editorial, Medical Record*, Sept. 2, 1916.

Rest and Exercise in Tb.—A thorough knowledge of the principles of rest and of exercise must underlie the treatment of tbc. Neither exercise nor rest is to be prescribed offhand, but so long as there are symptoms pointing to an overworked body, rest is indicated, the character and amount to be carefully prescribed; with improvement, exercise slowly increased provides the safest means of regaining health and strength. Exercise must be increased gradually, as a single act of over-exertion may delay recovery months or years, or even preclude it. The transitional period should be under careful medical supervision until the patient is able to withstand without harm more than he will be called upon to endure when he takes up active work.—*Rest and Exercise in Tuberculosis*, Th. Frazer (Asheville) *South. Med. Jour.*, July, 1916.

Cyanocuprol in Tb.—In eighteen cases of Tb. treated with cyanocuprol the results were markedly effective. It may be used more generally than tuberculin. The maximum dose of 8.5 c.c. should never be exceeded. The shortest interval between injections should be two weeks. The patient should be placed under conditions of complete physical and mental rest after the injection. Rest to the lesion is also necessary. Irritants to the lesion, such as potassium iodide or tuberculin, should be avoided. No marked idiosyncrasy has been noted and no cumulative effects have been observed.—*The Treatment of Tuberculosis with Cyanocuprol*, Morisuke Otani, *Journal of Experimental Medicine*, Aug. 1, 1916.

Cases of Surgical Tb.—Illustrative cases of extensive perirectal suppuration, extensive cervical adenitis with sinuses, old and recent abdominal Tb., are cited from the surgical service of Sea View Hospital (New York City), proving that thorough dissection of even old and widespread tbc. foci can accomplish local cure and improve the accompanying pulmonary disease.—*Clinical Notes from the First Surgical Division of Sea View Hospital*, A. Nicoll & M. J. Horan, *N. Y. Med. Jour.*, June 24, 1916.

TRUST FAMILY DOCTOR, NOT SCIENTIST, HE SAYS.

Dr. Beverly Robinson Declares New York Will Be
Better Off Then in Epidemics.

New York will be better off in the next epidemic if the authorities rely more on family doctors of experience, and less on scientists, experts and specialists, according to Dr. Beverly Robinson, clinical lecturer at Bellevue and consulting physician at St. Luke's and the City Hospitals.

"To the pure scientist, the laboratory worker," he says in yesterday's *New York Medical Journal*, "it seems as though his word was law, to be listened to and obeyed first of all; yet we know *his knowledge is almost wholly experimental* and only some of it will endure, and maybe the larger portion will later be shown to be faulty and misleading."

Dr. Robinson speaks of *severe and impractical rules laid down by health authorities acting on scientific advice*. Then he praises the general practitioner and says: "Therefore, in every health board, in every hospital, among the specialists of different sorts, the presiding and controlling man should be the all around physician."

"Had this been the case we should not have seen, as we have, the exaggerated terror prevalent in the late epidemic; we should not have had *regulations of quarantine and care insisted upon which were illusory*; we should not have had daily heralded in every newspaper the experimental doings from the latest researches of the laboratories, which may not prove ultimately of great practical value."

Of the blood serum treatment he says: "We must not run wild about new findings."

—*The Medical Economist*.

BIRTH CONTROL AND BRAIN STORMS.

"Birth Control" seems to be irritating the minds of a few medics and an occasional professor. Won't some one invent a "Brain Storm" control?

THE DOCTOR.

Ah, who would choose to be a Doctor—
A Microbe-stalking Pill-concocter!
At 3 a. m. they ring his Bell
Because some Fellow's dined too well.
He has to leave a Joyous Frolic
Because a Baby gets a Colic;
And while subduing Mortal Ills
With Jalap, Ipecac and Squills,
He has to hear the Conversations
Of Patients, matching Operations;
And then, to crown his Pain and Strife,
They villify him here, in "Life."

—*Arthur Guiterman in "Life."*

PAINFUL AFFECTIONS OF THE FEET

(Continued from page 118.)

a clinical entity which should be mistaken for nothing but syphilis.

After having suggested some of the many causes of painful feet, I can only say in conclusion, let us give these cases the benefit of at least as careful investigation as we would if they suffered from equally painful ailments elsewhere in the body.

7 West Madison street.

DO YOU KNOW THAT

Efficiency decreases as fatigue increases?

The full pay-envelope is the great enemy of tuberculosis?

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY.

Scientific Meeting, January 3, 1917.

The President, Dr. A. Augustus O'Neill, in the Chair.

Dr. Frank Smithies discussed the etiologic relationship existing between gastric ulcer and gastric cancer. From a most complete and painstaking study MacCarty has demonstrated that of 280 resected chronic, calloused gastric ulcers, in which there was no clinical or gross surgical hint of malignancy, 63 per cent. showed evidences of a typical or undifferentiated cells in their hyperplastic edges. Dr. Smithies' study of 544 surgically demonstrated cases of gastric ulcer in no way indicates the frequency of cancer formation from such. Presuming that the 540 cases of gastric ulcer form part of a group of ulcer cases which arose at some time previously, it is manifestly impossible to tell what course the original group has taken, namely, how many have healed spontaneously or with the aid of medical care, how many had survived as benign ulcer cases, or on how many have surgical procedures been performed, and how many have terminated as cancers. In the author's opinion the above facts furnished insurmountable obstacles to the possibility of any, even approximately correct, estimate being made with regard to the frequency with which benign gastric ulcer becomes cancer.

As to the position in the stomach wall of gastric ulcers and gastric cancers, in 37 per cent. of his cases of cancer the neoplasm was located at the pylorus. In 28.2 per cent. on the lesser curvature or antrum; in 18.3 per cent. it was general; in 6.8 per cent. on the posterior wall; in 5 per cent. at the cardia; in 1.3 per cent. on the greater curvature; in 0.65 per cent. at the fundus, and 0.5 on the anterior wall. In approximately 3 per cent. of instances the location of the growth was not exactly determined.

Dr. W. W. Hamburger spoke on the mechanism of

gastric pain in chronic ulcer, its importance in diagnosis and treatment. Although the theory of acid irritation is attractive and seemingly logical, certain clinical experiences can be cited which tend to throw some doubt on its validity. 1. Pain is usually absent in acute ulcer, even though the stomach be riddled with them. 2. Intervals of complete freedom from pain occur in chronic ulcer, although the base of the ulcer remains in the same position, or although extension is going on in it. 3. Pain may be present without ulcer, as proven by operation or autopsy. 4. Severe pain may occur without ulcer and without free acid. These cases are perhaps the strongest argument against the theory of acid irritation. 5. Pain, indistinguishable from ulcer pain, occurs in disease of the stomach other than ulcer, or in disease elsewhere, such as the gall-bladder, appendix, lungs, heart, kidney, and central nervous system. 6. Chronic ulcer may develop and progress entirely without pain as evidenced by (a) the large group of latent ulcers; (b) the finding of old scars at autopsy in individuals, who, during life, never suffered with gastric distress; (c) the cases progressing latently, suddenly announcing themselves by an acute hemorrhage or perforation; (d) finally the chronic deep ulcers found in aged individuals progressing entirely without symptoms during life. 7. The absence of pain in operatively proven cases of ulcer, in whom varying amounts and degrees of hydrochloric acid had been swallowed or injected.

The contradictions brought out by these experiences and others have thrown considerable doubt on the simple explanation of the acid stimulation of the ulcer base. The following are among the most prominent theories advanced concerning the pathogenesis of ulcer pain: 1. Congestion of splanchnic vessels and gastric mucosa during periods of digestion and emotional excitement. 2. Neuritis or neuralgia of stomach nerves. 3. Local lymphangitis following infection of ulcer, with or without subsequent involvement of serosa. 4. Inflammatory exacerbation. 5. Pyloric spasm. 6. Perigastritis and local peritonitis. 7. Dragging on the peritoneum and adhesions. 8. Mechanical irritation by food. 9. Increase in gastric muscle tension from a rise in intragastric tension.

Dr. Alfred Strauss spoke on the modern surgical treatment of gastric ulcer and its relation to plastic surgery of the stomach. As to the question of operative procedures in perforation of the ulcers, the author spoke of those cases of perforated ulcer in which there is marked induration of the area surrounding the ulcer. The usual procedure is to place a pursestring suture around such an ulcer and invert it and occasionally reinforce it with Lembert sutures. When the location of the ulcer is in the pyloric antrum or pylorus, this produces a marked obstruction, and for this reason he reported a method by which he has simply cauterized or curetted the ulcer, brought the edges together with a few interrupted silk sutures, placed a fascial transplant from the anterior sheath of the rectus over the ulcer and indurated area and attached it to the normal tissue with interrupted waxed silk sutures. In addition, the free end of the great

omentum was sutured over the transplant. This prevents leakage and vascularizes and vitalizes the fascial transplant, and nourishes and helps to vascularize the anemic, necrotic area in which the ulcer has occurred, thereby promoting the healing of the ulcer. He believes that the simple pursestring inversion of perforated ulcer must break through the necrotic and indurated portion of the stomach and account for many of the secondary leakages which occur on the third or fourth day following this operation. He has operated three such cases of perforated ulcer by this fascial transplant method and all have made uneventful recoveries.

Scientific Meeting, January 10, 1917.

Hon. Francis Neilson, Member of the British Parliament, spoke on social insurance, its bearing on the medical profession and the public, as observed in Great Britain and the continent. He gave a general idea of how the insurance bill was introduced in Parliament, and stated that he wanted the medical profession in America in their agitation regarding such legislation as health insurance to be wise and not make the mistakes they did in Great Britain. Physicians should familiarize themselves with every phase of the subject before securing legislation. After the insurance act went into operation they found there was resentment and dissatisfaction all over the country. A number of amendments had to be passed, but he thought it perfectly fair to say that the English Act has not had a fair trial in the two years and a few months it was in operation before the outbreak of the war. An act of that kind should be tested for at least ten years before final judgment is pronounced upon it. If people are given the idea that the state is going to help them, their attention is taken away from the fundamental principles of justice. They cease to study fundamental problems. They do not go to the root of things at all. This measure is only palliative; it is not curative.

Scientific Meeting, January 17, 1917.

Dr. Joseph L. Miller spoke on what medicine has accomplished in Cook County Hospital and how it can be improved. At present the Cook County Hospital is well equipped, has an enthusiastic staff, an excellent intern body, and is doing a class of work on a par with the best hospitals in the city. At no time in the history of the hospital have the patients so uniformly received good medical service as at present. Until the introduction of civil service at the hospital there was such a lack of organization with consequent insufficient co-operation of the various elements that there was little incentive to undertake productive work. Until four years ago the equipment of the hospital, both in apparatus and adequate assistants in the department of Pathology, rendered it practically impossible to carry on but the simplest observations. Now conditions are most favorable, not only for doing the highest grade of medical teaching, but also for carrying on investigative work.

Dr. Maximilian Herzog said that nothing has been so fruitful in final beneficial results in medicine as pure

scientific research work, primarily undertaken to discover a truth of nature without any view to direct and immediate useful results. It is the duty of the profession to try to institute in large public hospitals laboratories where not only the routine work, but also scientific research can be properly conducted. Research work in the laboratory of pathology of Cook County Hospital has recently received a powerful stimulus in connection with the work on poliomyelitis conducted there. This work has been made possible by the order of the Health Commissioner, Dr. Robertson, to hospitalize all cases of poliomyelitis. If these cases had not been collected into the County Hospital and had been distributed sporadically over the city, very little could have been accomplished, but their central location permitted a control and a scientific investigation of the material.

Dr. J. Rawson Pennington urged that the society ask the Board of Cook County Commissioners to request the public to lend a helping hand in building the necessary laboratories for Cook County Hospital. He introduced a resolution to that effect, asking that a committee of 40 members be appointed with the President of the Chicago Medical Society as its Chairman for the purpose of conferring with the President and the members of the Board of Cook County Commissioners concerning ways and means for constructing and equipping a comprehensive pathological and research laboratory or laboratories for Cook County Hospital, and for the purpose of finding ways and means to arouse enthusiastic interest among members of the profession and the public concerning the great importance and the necessity for these laboratories.

Dr. E. Wylls Andrews, in speaking of the surgical achievements and possibilities in Cook County Hospital, stated that a little over three years ago he was selected by the civil service as chief of the surgical division of the County Hospital, and he said it is a privilege to have been associated with such a progressive group of sixteen attending surgeons, selected after a strenuous competitive examination of well-known specialists, writers and instructors, representing the best institutions in the city. The initiative for this great chance came from two county board presidents—men with unusual foresight and public spirit—Mr. McCormick and Mr. Reinberg, and from the able committee of physicians of this city who spent several months in planning the new organization. He called attention to the excellent work that has been and is being done by Warden Smith to build up the institution and to make it one of the most modern hospitals.

Dr. Karl Meyers said that the functions of a charity institution are, first, to take care of the sick of the county. The County Hospital is adequately doing this at the present time. The second thing for a charity hospital to do is to teach young medical men to become physicians and surgeons of recognized repute. Third, to undertake undergraduate teaching. The undergraduate teaching at the Cook County Hospital is as good as it is in any hospital in the country.

J. V. FOWLER, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY *Meeting of May 22, 1916—Continued.*

DISCUSSION.

Dr. Harry S. Gradle said he had reported 360 cases in the archives of ophthalmology of enucleation and evisceration, with and without fat implantation, and that he was very glad to see these cases of Dr. Suker's because they bear out the reports which he had made at that time. In that report the speaker had said that fat implantation can be used in every case of enucleation of the eyeball and, in cases of evisceration, fat implantation can be used in every case, except in the presence of infection of coats of the eye. In some eight cases of protrusion of fat, out of 120 odd implantations, practically all were due to the implantation of fat in the face of an acute infection. Apart from these acute infections, there are no contraindications to the implantation of fat into either the sclera or the capsule of Tenon. The cosmetic effect is wonderfully improved in either condition. There is one decided advantage if fat is to be implanted following evisceration. If there should be protrusion of fat or if not enough fat were put in, at any time within three or four weeks after the operation, this defect can be remedied by the injection of paraffin. There is some absorption of fat after implantation of fat into the capsule of Tenon, but it is small. This fat forms itself into funnel-shape, with the apex lying at the apex of the orbit. The implantation of fat into the sclera capsule is not followed by any absorption of fat to speak of. Two precautions, however, must be taken: Too much fat cannot be implanted into the scleral capsule on account of pressure and the extrusion of the fat. On the other hand, in the implantation of fat in Tenon's capsule a larger amount must be implanted. If the suturing is done carefully the effect of pressure is negligible.

Dr. Suker, closing the discussion, said that one cannot reason from dog to man, because the Tenon's capsule of a dog is not nearly as resistant as that in man. The absorption that takes place in man is relatively little and enucleation properly done does not disturb the posterior portion of the capsule of Tenon. The longest implantation of fat he has had in the capsule of Tenon is a little over two years and the amount of fat there has remained practically the same as when first transplanted.

REPORT OF CASES

Dr. William A. Fisher, in presenting a case, said that many competent operators believe that the old operation is safer than the intracapsular operation as practiced by Colonel Smith in India; the intracapsular operation being condemned on account of the loss of vitreous. With the slight modifications made by the speaker in the Smith technic, the danger of the loss of vitreous is less in the intracapsular operation than in the old method.

The speaker exhibited a male patient, aged 63, with immature cataract in both eyes; vision, right, 4/200; left, 10/200. The intracapsular operation was performed on the right eye April 8. Both eyes bandaged nine days. No pain or inconvenience; not confined to bed. Bandage removed at end of nine days. Patient could count fingers at five feet. Smoked glasses prescribed with no other treatment. Thirteen days after operation there was scarcely any redness; left eye was operated upon in same manner as right. Bandages omitted after nine days and smoked glasses ordered. No pain or inconvenience from second operation. Patient dismissed from hospital May 16. On leaving hospital his vision in the right eye was 20/15 with plus 10, and 20/20 in the left with plus

10. The speaker said he used the same amount and kind of pressure with the modified technic as is made in India; that the needle is only used when the lens refuses to be born after safe pressure. The needle is no part of the Smith technic. The incision is always made in the cornea; there has been no loss of vitreous in the last 20 operations; there have been 3 cases of post-operative inflammation in the last 94 operations; the better the intracapsular technic is understood the less often will the needle be necessary.

The speaker has obtained 20/20 in more than half of 94 consecutive cases recently reported.

There are many who would oppose these procedures described, but the speaker is of the opinion after operating 200 eyes in this manner that there is more to be said in favor than against operating upon both eyes at the same time.

DISCUSSION.

Dr. George F. Suker said that there is no question about the intracapsular operation being the ideal one. There is only one objection, an anterior vitreous haze occasionally occurs, which is principally in the hyaloid membrane. When this membrane is injured or wrinkled it remains so and accounts for the apparent capsular remains in some of these intracapsular extractions. This does not occur very frequently, however. If the corrugation and wrinkling of the hyaloid membrane is very intense, it is advisable to needle very cautiously. What causes this wrinkling he does not know.

Dr. Fisher, in closing the discussion, said that he had not had the experience of this wrinkling, and that it might be due to faulty technic; that he could always see the fundus without trouble upon getting the lens out.

PAUL GUILFORD, Secretary.

CHICAGO ROENTGEN SOCIETY.

Regular meeting held at the Cook County Hospital, Dec. 9, 1916.

The initial number on the program was the presentation of plates with case reports.

Dr. Moir exhibited plates of a case of eventration of the diaphragm; this diagnosis was essentially attained by the administration of an opaque meal. The original clinical diagnosis was dextra cardiac.

Dr. Hollis E. Potter showed some unusual plates: Case 1. Presented shadows simulating ureteral calculi; however, a unique method of projection showed almost conclusively that these shadows were extra ureteral. Early history was highly suggestive of tuberculous peritonitis; therefore, it was assumed that these shadows were calcified glands.

Case 2. Diagnosis difficult. Patient suffered with terrific pains in back of neck, positional behind right side of mediastinum. Pain does not radiate. No pulsation. Had had abscess attached to abdominal wall. It was drained and healed. Had hernia. Dr. Potter thought it might be an infected, broken down gland.

Case 3. Highly interesting because unusual. A lateral roentgenogram of the head showing a spongy network, probably osseous tumor, involving the region of the optic chiasm.

Dr. M. J. Hubeny showed three cases: Case 1. A roentgenogram showing a shadow of a mole on the

back; also a renal calculus. Singular, because of this occurrence in one patient.

Case 2. Marked syphilitic osteo-porosis. Wassermann—positive.

Case 3. Apparently detached bone involving internal condyle of femur. Age 19; sex, male; history, negative for trauma. Repeated roentgen examination for the past year and a half showed a quiescent condition. Alban Kohler quotes, trauma, infarct or osteo-chondritis dissicans as causative factors.

The next regular number on the program was a paper by Dr. Fred Zapffe, which is subjoined:

THE ROENTGEN RAY IN THE DIAGNOSIS OF BONE TUMORS.

FRED. C. ZAPFFE, M. D., F. A. C. S.

CHICAGO.

Abstract. Bone tumors are common. Owing to the nature of the structures entering into the formation of bone, every variety of tumor is found in bones and in periosteum. Carcinoma, hypernephroma and thyroid cancers are always secondary in bone. All the other types of tumor are primary. The diagnosis of these tumors is not yet sufficiently well developed to make their detection always possible. Of greatest importance in the diagnosis is the clinical history, a fact which was emphasized repeatedly in all of his talks and writings by the late Dr. John B. Murphy. Trauma seems to play a great rôle in the etiology of these tumors, but perhaps we are a little too prone to read trauma into the history. However, there is no doubt that the younger the patient the greater the influence of trauma, so far as a clinical history is concerned. The location of the tumor with reference to the epiphysis must be considered also. The greatest attention should be paid to indefinite referred pains, or to any pain, in fact, for which the cause is not readily elicited. It is here that the roentgen ray is of the greatest value, but roentgenograms should be made not only early, but sufficiently often; that is, at intervals, so that when the pathology in the bone does make its appearance, the roentgen ray can detect it. If only one roentgenogram is made early in the history of the case, there may not be sufficient pathology present to be detected by the ray. A second roentgenogram, made a month later, may show the condition.

A second point to bear in mind is the fact that pain may be reflected, say to the hip, when the tumor is situated at some distance from the hip. Hence a roentgenogram of the hip would be negative, while a roentgenogram of the entire upper leg would disclose the tumor. Therefore, a sufficiently large area should be covered in the roentgen examination.

The laboratory diagnosis is third in importance in the diagnosis of bone tumors. But with improved methods of examination and with greater knowledge of the histology and pathogenesis of bone tumors this means of diagnosis bids fair to be of greater value than it now is.

Needless to say the interpretation of the roentgenogram is a matter of prime importance, because bone

cysts should not be labeled sarcomata and a sarcoma should not be called a bone cyst. The same applies to several other forms of tumors, as one type might easily be taken for another if the examination is not thorough and painstaking.

The literature contains many instances in which a malignant tumor of the bone was mistaken for a benign tumor by the roentgenologist, and the clinical history, probably because of such findings, was misinterpreted. In two instances reported by a well-known surgeon, a myositis ossificans was mistaken for sarcoma. The patient was advised to have an amputation of the leg, but fortunately in this case deferred action and consulted the surgeon referred to who made the correct diagnosis, which was confirmed by operation, thus saving the patient's limb. To make an early diagnosis of a malignant tumor, and this refers merely to sarcoma, the patient will also often be spared the loss of a limb. Sarcoma usually is of the type which permits of removal without amputation, and if this is done early recurrence rarely takes place. Metastases unfortunately do occur afterward in these cases, and inasmuch as the lung is usually the site of the metastases, a fatal termination is inevitable.

Summarizing the whole subject briefly, one may say that a good clinical history, early, repeated and sufficiently extensive roentgen examination, with prompt and proper treatment, offer a large measure of success in the treatment of bone tumors.

DR. JAMES T. CASE,
President.
DR. M. J. HUBENY,
Secretary.

GREENE COUNTY.

The annual meeting of the Greene County Medical Society was held in the City Council Chamber at White Hall, December 15, 1916.

The meeting was called to order at 12:00 noon, by H. W. Chapman, president pro tem., President Thomas and Vice-President Hawthorne, both being absent.

In view of the fact that this society lost two of its members since the last meeting, a committee, consisting of H. W. Smith, Roodhouse; Howard Burns, Carrollton, and F. N. McLaren, White Hall, was appointed, and the following resolutions were presented and adopted:

WHEREAS, The Almighty has decreed that two of our beloved friends and colleagues, in the persons of G. W. Ross, of Carrollton, and C. B. Foreman, of Kane, join the forces of the great Beyond, Be it

Resolved, That the Greene County Medical Society desires hereby to record a sense of loss felt by all its members and to express its admiration of the many excellent professional and social qualities possessed by both the deceased; and be it further

Resolved, That these resolutions be spread upon the minutes of this Society, and that a copy be sent to the families of each of the deceased.

H. W. SMITH,
HOWARD BURNS,
F. N. McLAREN.

Drs. W. T. Knox and J. S. Billings were elected to membership.

The following officers were elected: O. L. Edwards, Roodhouse, president; E. E. Jouett, Carrollton, vice-president; L. O. Frech, White Hall, secretary-treasurer; E. J. Peek, White Hall, censor (three years). F. N. McLaren, White Hall, was elected Censor for one year, to fill the unexpired term of C. B. Foreman, Kane, deceased. H. A. Chapin resigned as delegate to the State Meeting, and L. O. Frech was elected to fill the unexpired term of one year. Howard Burns was elected alternate to fill the unexpired term of L. O. Frech.

The new president appointed the following as the Legislative Committee: Chairmen, Howard Burns, R. O. Hawthorne, F. N. McLaren.

The Society regrets very much the loss of its former secretary and treasurer, H. A. Chapin, who has served the Society well in that capacity since 1902. He has been a faithful and untiring worker and much of the success of the Society has been due to his efforts.

Upon motion the Society adjourned, to meet again at 1:45 p. m.

Dinner was served the members of the Society by the ladies of the First M. E. Church, and the repast was heartily enjoyed by all present.

Society convened at 2:00 p. m. and was called to order by President C. R. Thomas. A very interesting paper on "Some Diagnostic Points in Surgery" was read by Dr. J. W. Hairgrove, of Jacksonville, and many of the latest instruments of diagnostic precision were shown by him at this time.

H. A. Chapin, presented a paper on "The Scope and Utility of the Roentgen Ray," and a number of slides were shown which clinched the arguments of the Doctor's paper.

Fourteen members and one visitor were present.

Censors reported Carrollton as the next place of meeting, to be held Friday, February 9, 1917, after which the Society adjourned.

DR. L. O. FRECH,
Secretary.

JO DAVIESS COUNTY

The Jo Daviess County Medical Society met in the parlors of the Warren Hotel. Meeting called to order by the President, A. T. Nadig, at 1:30 p. m., January 4, and three visitors were present.

Drs. Brink of Apple River and Best of Freeport, were elected to membership.

The President appointed as auditing committee: Renwick, Bench and Runkle; as committee to revise the fee bill: Bench and Runkle, of Joe Daviess, and D. G. Smith, of Stevenson counties; as committee to nominate new officers for the ensuing year: Kreider, D. G. Smith and I. C. Smith.

The following officers were elected: President, Kellar; vice-president, Fleege; secretary-treasurer, Stafford; censor for three years, Hagie; censor for two years, Boots; censor for one year, I. C. Smith;

representative to State meeting, Bench; alternate, Gollobith.

Committee reported the following apportionment of entertainment divisions:

Galena—Bench, W. A. Smith, Dolomere, Fleege, Miller, W. F. Smith.

Warren—Brink, Rodge, Kellar, Czibulka, Downing, Renwick.

Stockton—Kreider, I. C. Smith, Stafford, Runkle, Tyrrell, Rice.

Elizabeth—Nadig, Boots, Gollobith, Logan, Hagie, Lewis.

Dr. E. Windmueller, of Woodstock, began the scientific program with an excellent paper on "Open Treatment of Extensive Burns and Skin Grafting"; discussed by Snyder, Staley and Guthrie.

Dr. Clark gave "A Few Retrospective and Prospective Thoughts Concerning Some Health Problems," which was most interesting and was discussed by Windmueller, Rice and Staley.

Dr. Staley's paper on "Cancer Problem" held the attention and was discussed by Windmueller, Downing, Guthrie, Snyder and Hagie.

After these most intellectual and instructive subjects had been discussed Dr. Kreider made a motion to extend a vote of thanks to Dr. Windmueller for his efforts in behalf of the society, which was carried unanimously.

The committee on fee bill then reported; motion made, seconded and carried to accept the same as revised by committee.

The business of the meeting concluded, was adjourned, then followed the pleasure of the day in the form of a delicious banquet.

(Signed) U. S. KELLAR,

President.

T. J. STAFFORD,

Secretary.

KANKAKEE COUNTY

The January meeting of the Kankakee County Medical Society was held in the Kankakee County Court House on January 11, with the newly-elected president, Dr. C. W. Geiger, in the chair. An enthusiastic meeting was held in which Dr. A. M. Corwin, of Chicago, read a very interesting and instructive paper on "Professional Returns." As this is a subject close to the heart of all physicians, lively discussion followed, led by Dr. H. D. Singer of the State Psychopathic Institute and Dr. C. F. Smith of Kankakee.

Three new members were elected to the society; two by transfer, Dr. Phipps, of Manteno, and Dr. Eldredge, of Bonfield; and one by application, Dr. Roth, of Kankakee.

The proposed health legislation now before the state legislature was discussed.

A vote of thanks was tendered Dr. Corwin for his address, after which he read some original poetry. (Don't miss an opportunity to hear it.)

Eighteen members and visitors were in attendance.

EDWIN S. HAMILTON,

Secretary.

MADISON COUNTY

The Madison County Medical Society met in annual session at the rooms of the Retail Merchants' Association in Alton on December 1, with Dr. R. D. Luster, president, in the chair. Members present, 25; visitors, 2.

The annual reports of the secretary and treasurer were read, referred to auditors, found correct, and ordered filed. These reports have been made a matter of record and also published in the *Madison County Doctor*.

An effort was made to promote the present secretary to the office of president and his name was presented in a neat nominating speech by Dr. J. H. Siegel, of Collinsville, but at the earnest solicitation of the secretary, who expressed his gratitude, Dr. Siegel was induced to withdraw the nomination. However, this episode was, on motion of Dr. W. H. C. Smith, made a matter of record. The result of the election is as follows: President, Dr. J. B. Hastings, Alton; vice-president, Dr. J. H. Siegel, Collinsville; secretary, Dr. E. W. Fiegenbaum, Edwardsville; treasurer, Dr. R. S. Barnsback, Edwardsville; state delegate, Dr. Mather Pfeifferberger, Alton; alternate, Dr. W. H. C. Smith, Godfrey; medico-legal member, Dr. Lay G. Burroughs, Collinsville; censors, Dr. G. Taphorn, Alton; Dr. J. A. Hirsch, Edwardsville; Dr. L. Schreifels, Granite City.

The secretary read a letter from Dr. E. A. Cook, of Alton, expressing his thanks and appreciation, for flowers sent him while confined in St. Anthony's hospital after a surgical operation.

After further alterations and discussion the Fee Bill was adopted and the fee bill committee was requested to have the same printed and distributed. Drs. Sutter and Johnson were appointed to conduct the newly elected president to the chair, where the retiring president presented him with a gavel as his badge of office. Dr. J. B. Hastings, our new president, accepted the gavel and the office in an appropriate speech, pledging himself to work for the interest of the society to the best of his ability.

The secretary was instructed to enter into tentative arrangements to secure the services of Mrs. M. A. Herrick as community nurse for the county from September 1, 1917, for as many months as may be determined by this society at some future meeting.

Dr. W. H. C. Smith, of Godfrey, made a statement in regard to the large increase in the number of morons in this state and of a movement now on foot to take care of this class of defectives and if possible to limit this increase for the future. Whereupon Dr. W. W. Halliburton moved that the society heartily endorses the movement for the better care of the mental defectives known as morons, and will lend its influence and support to any effort that is being made for the protection of these unfortunates and for the protection of society at large. He further moved that we hereby appoint Dr. W. H. C. Smith, of Godfrey, to present our views to the Conference of the State Charities Commission to be held at Hotel La Salle, in Chicago, on December 4, 1916. All of which was unanimously adopted.

PIKE COUNTY

The Pike County Medical Society met in Pittsfield on January 25, 1917, for its mid-winter session. There was a large attendance for the time of year, as the season has been rather sickly and many were unable to be present, especially from a distance.

After reading of the minutes of the last meeting at Barry, an informal discussion took place concerning the high cost of living and the inadequate fees of physicians. On motion of Dr. F. N. Wells, seconded by Dr. Peacock, the society voted to make the minimum price of a normal case of obstetrics \$15.00, and \$25.00 for an instrumental case; this applying to all of Pike County. No other charge of fees was made at this session, but a raise of fees is being considered by many members in the future.

A circular letter from Dr. Drake, relative to a clinical conference on poliomyelitis was read, and the society is ready and willing to co-operate and attend, the debate for this section being set for February 19.

Dr. R. O. Smith of Pittsfield then read an excellent paper on "Burns and Their Treatment." This received active discussion from nearly every member present.

Dr. O. C. Wise, of Griggsville, followed with a paper on "Pyloric Stenosis and Spasm." This subject was thoroughly treated both from a theoretical as well as a practical standpoint. Case histories of hospital patients in Chicago were alluded to, as well as a recent case seen in private practice.

This session was the largest January meeting in the past four or five years. All the members will boost for the largest meeting the society has ever held at Pittsfield, April 26.

W. E. SHASTID, Secretary.

ST. CLAIR COUNTY

The annual meeting of the St. Clair County Medical Society was held at the Elks Club, East St. Louis, January 4, 1917. The president, Dr. B. H. Portuondo, being absent, vice-president Dr. J. H. Fulgham presided.

The following officers were elected for the year 1917: President, Dr. J. H. Fulgham, East St. Louis; vice-president, Dr. Walter C. Wilhelm, East St. Louis; secretary-treasurer, Dr. A. E. Hansing, Belleville (re-elected); board of censors, Drs. C. W. Lillie, Hugo Wangelin and O. J. Culberson; delegate to state convention, Dr. B. H. Portuondo; alternate, Dr. C. W. Lillie; local legal advisor, Dr. C. A. W. Zimmermann.

On motion the society adjourned to meet again at the Elks Club, East St. Louis, on the first Thursday in February at 8:00 o'clock p. m.

A. E. HANSING, Secretary.

Personals

Dr. B. E. Ray, of Cuba, has removed to Lake Geneva, Wis.

Dr. Arthur C. Beyerlein, Colon, Panama, is visiting his parents in Chicago.

Dr. L. A. Burnside announces his removal from West Union to Terre Haute, Ind.

Dr. Arthur Schuettler was operated on for appendicitis in the Ravenswood Hospital, January 18.

Dr. William L. Hanson, Belleville, is on his way to England, where he will enter the Military Hospital Service.

Dr. Abraham L. Desser was seriously injured in a collision between his automobile and a street car, December 31.

Dr. Roscoe C. Giles heads the list of eligibles for appointments on the staff of the Municipal Tuberculosis Sanatorium.

Dr. A. W. Tarr, of Grand Chain, Ill., was operated on for appendicitis January 5, 1917, at St. Marys Hospital, in Cairo.

Dr. Allen B. Kanavel delivered three addresses on cancer in Lincoln, Neb., January 6, speaking before the Women's Club, the physicians of the city and the public.

Dr. Charles B. Johnson, Champaign, has been appointed a director of the Champaign County Tuberculosis Sanatorium, which was authorized at the November election.

Dr. John Webster Melody resumed his series of lectures on "Moral Law in the Medical Profession," January 7, at St. Jarlath's Hall, Hermitage avenue and Jackson boulevard.

Dr. George G. Davis, lieutenant-colonel of the Royal Army Reserve Medical Corps, spoke before the Chicago Alumni Club, January 20, on his experiences in a British base hospital in France.

Dr. Margaret D. Mitchell Macdougall, Aurora, was found seriously injured from a fall from the rear porch of her home December 31. Her husband is under arrest for assault with intent to kill.

Dr. Kellogg Speed, head of the Chicago unit stationed at Boulogne, France, writes that he was on duty thirty-three hours continuously operating on the wounded at the Somme front in July.

Dr. Charles F. Swan, for many years a practitioner of South Chicago, and who has been visiting in Vancouver, Wash., since last September, was stricken with cerebral hemorrhage December 24.

At the annual meeting of the Chicago Society of Internal Medicine the following officers were

elected: President, Dr. Robert B. Preble; vice-president, Dr. Rollin T. Woodyatt; secretary-treasurer, Dr. Charles A. Elliott (re-elected).

Dr. George B. Young, formerly commissioner of health in Chicago, has made a study of public health administration in St. Paul, the report being published as a serial in the current numbers of *Public Health Reports* by the U. S. Public Health Service.

Sister Mary Raphael McGill, for thirty-five years on duty at Mercy Hospital, Chicago, well known to medical students and practitioners, died December 24. Her duties as superintendent have been assumed by Sister Mary Rita, a sister of Dr. David O'Shea. She is a member of the Order of Mercy.

Dr. William D. Napheys, assistant clinician in neurology, Chicago Post-Graduate Hospital and Dispensary, has accepted an appointment on the staff of the Government Hospital for the Insane at Washington, D. C., for further study in neurology and psychiatry, leaving his practice in care of Dr. J. O. Salyers until his return.

Dr. William Healy, who has been head of the Chicago Juvenile Psychopathic Institute for the last seven years, has resigned to accept the position of director of the Harvey H. Baker Foundation, Boston. This foundation was established in memory of the late Judge Baker of the Juvenile Court, to aid that court by making psychopathic examinations of infant children. Dr. Healy was given a complimentary dinner, January 30, by the Chicago Ethical Society at the City Club.

News Notes

—The city council of Quincy has invited the U. S. Public Health Service to conduct a sanitary survey of Quincy in cooperation with the state board of health.

—The Western Roentgen Society will hold its annual meeting at the Hotel Sherman, Chicago, February 16 and 17, 1917. All members of the profession are cordially invited to attend.

—Mrs. Sarah Wheeler has donated her home and property in Lake Bluff, valued at \$50,000, to the Wesley Memorial Hospital. The property will be known as the Wheeler Convalescent Home.

—The new Municipal Contagious Disease Hospital in Chicago was opened to patients Janu-

ary 7, under the superintendency of Dr. Edward K. Armstrong. The building is five stories, of which five are devoted to scarlet fever patients.

—At the annual election of the staff of St. Francis' Hospital, Kewanee, January 11, Dr. Peter J. McDermott was elected president; Dr. Gideon H. Hoffman, vice-president, and Dr. H. Nelson Heflin, secretary, all of Kewanee.

—Attorney General Lucey is said to have decided that the special election held in Aurora in December, in which the supervisors of Kane County were authorized to appropriate money for a tuberculosis sanatorium, was illegal, because of incorrect wording of the ballot.

—The sentence of imprisonment for life imposed on Dr. Haldane Clemenson eight years ago for the murder of his wife was commuted, December 26, to twenty-five years by order of Governor Dunne. With the good conduct allowance, this will allow Dr. Clemenson to be released in 1923.

—At the twenty-fifth annual meeting of the Chicago Ophthalmological Society, held January 15, 1917, the following officers were elected to serve during the ensuing year: President, Dr. Paul Guilford; vice-president, Dr. Francis Lane; secretary and treasurer, Dr. Major H. Worthington; councilor, Dr. G. W. Mahoney.

—At the annual meeting of the Chicago Polish Medical Society the following officers were elected: President, Dr. Wladyslaw A. Kuflewski; vice-president, Dr. Anthony Balcerzak; secretary, Dr. A. Pietrzykowski (re-elected), and treasurer and editor-in-chief of the *Polish Medical Bulletin*, Dr. Nicholas Kalinowski (re-elected).

—Favorable action on an ordinance providing for reporting of venereal diseases without the name of the patient being disclosed was advocated before the city council committee on health, December 26, by Rev. John P. Brushingham, secretary of the morals committee. Addresses in favor of the ordinance were made by Drs. Roy R. Ferguson, Hugo E. Betz, James A. Clark, Eugene H. Wunderlich and Prof. Herbert L. Willett.

—The despised hobo is to be a factor in public health work. Dr. H. C. Yarbrough of the Public Health Service lectured on typhoid fever at the Hobo College, January 27, and other officers are to deliver lectures on other subjects weekly. In return the hobo are expected to report sanitary

conditions and contagious diseases in the camps where they are employed from time to time.

—The Coles County Medical Society has taken over the Cumberland County Medical Society and is now Coles-Cumberland Medical Society. The officers for 1917 are as follows: President, William Smith, Toledo; vice-president, O. T. Allen, Ashmore; secretary-treasurer, R. H. Craig, Charleston; delegate to state meeting, R. J. Coultas, Mattoon; alternate, C. E. Morgan, Mattoon; censors, T. O. Freeman, Ed Summers, Mattoon; S. E. Bigler, Neoga.

—The funds for the great medical institution in Chicago have reached an amount within half a million of the amount required, as announced by President Judson last month. Among the donors are J. Ogden Armour, \$200,000; Mrs. G. F. Swift, C. H. Swift, Dr. Norman Bridge and a "friend," \$100,000 each; the Billings family, \$1,000,000. The latter amount is for the Albert Merritt Billings Hospital in memory of the father of C. K. G. Billings and uncle of Dr. Frank Billings.

—At a meeting of the Chicago Neurological Society on January 18 the following resolutions were unanimously adopted:

WHEREAS, Dr. William Healy, the director of the Juvenile Psychopathic Institute of Chicago, has resigned from his position and is leaving for Boston to take up similar duties there, be it

Resolved, That the Chicago Neurological Society wishes to express its regret at Dr. Healy's departure, desires to signify its appreciation of Dr. Healy and his work, and wishes him every success in his new field of labor.

—Drs. J. W. Carlisle, C. E. Price, H. N. Rafferty and A. Lyman Lowe, of Robinson, Ill., have recently formed a partnership and opened a clinic on the co-operative plan. They are now occupying offices on the first floor of the new Robinson Hospital, which was built and equipped by them, and recently opened under the superintendency of Miss Katherina Steinman, St. Vincent's Hospital, Indianapolis, Class 1915. Besides the offices, examination rooms and accommodations for eighteen patients, the hospital has modern operating, obstetric, x-ray and laboratory equipment.

—The following committee has been appointed by Dr. A. A. O'Neill, president of the Chicago

Medical Society, to investigate the conflicting claims of Dr. John Nuzum and Dr. Maximilian Herzog as to the discovery of an antitoxin for the cure of infantile paralysis. Professor Walter Haines, Rush Medical College; Professor Ralph Webster, Rush Medical College; Professor Arthur I. Kendall, dean of Northwestern University Medical School; Professor Robert Zeit, chief pathologist, Northwestern University Medical School; Professor D. A. K. Steele, dean of the University of Illinois Medical College; Professor D. J. Davis, professor of pathology at the University of Illinois Medical College; Professor A. J. Ochsner, professor of surgery at the University of Illinois Medical College, and Professor A. E. Eycleshymer, professor of anatomy at the University of Illinois Medical College.

Marriages

WILLIAM JOFFEE, M. D., to Miss Freda Abelson, both of Chicago, January 14.

FREDERICK G. FOX, M. D., to Miss Anna Kuehn, both of Chicago, December 31.

NORMAN DIXON CURRY, M. D., to Miss Neal Jelleneaux, both of Chicago, in October.

GUSTAV KOLISCHER, M. D., Chicago, to Miss Juliette Lippe of New York, December 26.

Obituary

DR. PETER SCHERMERHORN WEIDMAN.

Dr. Peter Schermerhorn Weidman, a man who for 41 years administered to the wants of the people in the eastern section of Madison County, Ill., was born in Schoharie Court House, New York, May 2, 1826. He gained his preliminary and classical education in the common schools and the academy of his native village and at the age of 24 began the study of medicine under preceptors and at Ann Arbor. He took his last year at Albany Medical College, New York, from which he graduated in 1855. After practicing in New York for two years, he came west and located at Marine, Ill., in March, 1857, and immediately began an active business that was to last for many years. His was essentially a country practice, extending for many miles in all directions, and either on horseback or in his high-wheeled sulky he became a familiar figure in all the surrounding territory during the earlier years of his activity. When he first came to Marine, he found five physicians already located there, and lived long enough to see twenty-five doctors come and go in that community during his professional career. He did a

general practice and was a fair example of the type of "old family doctor," so general in that day, and so unusual now.

He retired from active work in 1898, and after living in Marine two years more, moved to Edwardsville and took up his residence in the Leland hotel, where he remained until March, 1915, when he was taken to Jacksonville State Hospital, where he died on January 2, 1917.

Deaths

CHARLES E. CALDWELL, M. D., Chicago; Rush Medical College, 1877; aged 65; died at his home, January 5, from pneumonia.

JOHN BECKER, M. D., Chicago; Rush Medical College, 1865; aged 87; died at his home, December 29, from tuberculosis.

LOTHAR M. SCHWARZ, M. D., Chicago; Jenner Medical College, 1897; aged 54; died at his home, December 21, from cirrhosis of the liver.

EFFA A. OSBORN NORTON, M. D., Chicago; Curtis Physio-Medical Institute, Indianapolis, 1896; died at her home, December 22, from diabetes.

JAMES W. FITZMAURICE, M. D., Chicago; Rush Medical College, 1889; aged 56; formerly a member of the Illinois State Medical Society; died at his home, December 29, from uremia.

WILLIAM DAVID HOLLMERS, M. D., Chicago; College of Physicians and Surgeons, Chicago, 1915; an intern in Cook County Hospital, Chicago; died in that institution, December 23, from typhoid fever.

JOHN T. FUGATE, M. D., Urbana, Ill.; Missouri Medical College, St. Louis, 1859; aged 86; one of the oldest practitioners of central Illinois; died at the home of his daughter in Urbana, December 25, from senile debility.

EMORY OLIVER ONION, M. D., Sumnum, Ill.; Keokuk (Iowa) Medical College, 1906; aged 38; a Fellow of the American Medical Association; died December 16, in the Macomb (Ill.) Hospital, where he had been under treatment for tuberculosis.

JOSEPH J. PIERRON, M. D., Chicago; College of Physicians and Surgeons, Chicago, 1893; aged 61; chief surgeon to the Chicago Terminal Traction-Railroad Company and local surgeon of the Chicago Great Western Railway; died at his home, December 14, from diabetes.

JAMES A. CLYNE, M. D., Joliet, Ill.; Albany (N. Y.) Medical College, 1886; aged 56; a Fellow of the American Medical Association; formerly president of the Will County Medical Society; local surgeon of the Chicago and Alton Railroad for twenty years, and in 1893 and 1894 health officer of Joliet; died at his home, November 8, from carcinoma of the throat.

W. FRANKLIN COLEMAN, M. D., Chicago; Queens University, Kingston, Ont., 1863; M. R. C. S. (Eng.), 1870; aged 79; formerly a Fellow of the American

Medical Association; one of the founders and president of, and professor of ophthalmology in the Post-Graduate Medical School of Chicago; well known as a specialist in diseases of the eye, ear, nose and throat; died in Hastings, Fla., January 22.

SAMUEL ANDERSON MCWILLIAMS, M. D., Chicago; Northwestern University Medical School, 1866; aged 81; a Fellow of the American Medical Association; formerly lecturer on urinary and renal disorders in his alma mater and later professor of anatomy in the Northwestern University Woman's Medical School; one of the organizers of the College of Physicians and Surgeons, Chicago, and later one of the founders of the Chicago Hospital College of Medicine; professor of diseases of the chest, clinical, medical and physiology in Reliance Medical College, Chicago; a specialist in physical diagnosis; died at his home, January 4, from arteriosclerosis.

NEW AND NON-OFFICIAL REMEDIES.

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Merck & Co.: Formin Tablets, 5 gr. and 7½ gr.; Veronal Tablets, 5 gr.

H. K. Mulford Company: Pertussis Bacterin, Mulford.

Schering & Glatz: Iocamfen; Iocamfen Ampules.

E. R. Squibb & Sons: Urease-Squibb.

Non-proprietary articles: Acetylsalicylic Acid; Neutral Solution of Chlorinated Soda.

Mercurialized Serum-Mulford. The following dosage forms of mercurialized serum-Mulford, described in New and Non-official Remedies, 1916, p. 192:

Mercurialized Serum-Mulford, No. 5-A. Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 5-B. Each package contains one 8 Cc. graduated sterile glass syringe with sterile needle, containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-A. Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.0055 Gm. (1/12 grain) mercuric chloride.

Mercurialized Serum-Mulford, No. 6-B. Each package contains ten 8 Cc. graduated sterile glass syringes with sterile needle, each containing the equivalent of 0.011 Gm. (1/6 grain) mercuric chloride. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Dec. 9, 1916, p. 1759.)

Pertussis Bacterin-Mulford. A pertussis bacillus vaccine (see N. N. R., 1916, p. 321). Pertussis Bacterin-Mulford is sold in packages of four syringes containing 50, 100, 200, and 400 million killed Bordet-Gengou bacilli. H. K. Mulford Company, Philadelphia, Pa. (Jour. A. M. A., Dec. 16, 1916, p. 1851.)

During January the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

Merck & Co.: Barium Sulphate, Merck, for X-ray diagnosis. Therobromide, Merck.

Powers-Weightman-Rosengarten Co.: Barium Sulphate, P. W. R., for X-ray diagnosis.

Western Chemical Company: Tabellæ Dulces Aristochoin (Western) 1 gr.; Tabellæ Dulces Heroin (Western) 1/100 gr.; Tabellæ Dulces Novaspirin (Western) ¼ gr.; Tabellæ Dulces Tannalbin (Western) 1 gr.; Tabellæ Dulces Terpin Hydrate with Heroin (Western) 1/100 gr.

Formin Tablets, 5 grains.—Each tablet contains 5 grains of formin (see New and Non-official Remedies, 1916, p. 138.) Merck & Co., New York.

Formin Tablets, 7½ grains.—Each tablet contains 7½ grains of formin (see New and Nonofficial Remedies, 1916, p. 138). Merck and Co., New York.

Veronal Tablets, 5 grains.—Each tablet contains 5 grains of veronal (see New and Nonofficial Remedies, 1916, p. 92). Merck & Co., New York (Jour. A. M. A., Jan. 6, 1917, p. 35).

Urease.—An enzyme found in certain beans, fungi and micro-organisms which, in the presence of water, converts urea into ammonium carbonate. It is used in the determination of urea in the urine, blood and other body fluids, either by determining the increase in alkalinity of the fluid to which it is added, or else the ammonia produced by it in the fluid is removed and estimated.

Urease-Squibb.—A standardized preparation of urease obtained from the jack bean. It is supplied in the form of powder and tablets containing 0.1 gm. E. R. Squibb & Sons, New York.

Neutral Solution of Chlorinated Soda.—Solution Chlorinated Soda, Dakin.—Solution Chlorinated Soda, Carrel-Dakin.—A chlorinated soda solution, containing 0.43 to 0.48 per cent of available chlorine, free from caustic alkali. It is prepared by treating a suspension of chlorinated lime in water with definite amounts of sodium carbonate and sodium bicarbonate and adjusting the separated clear liquid to the required content of available chlorine. The solution is not reddened by phenolphthalein. It must be protected from light. The solution has been used for the irrigation of wounds, especially infected war wounds.

Theobromine-Merck.—A brand complying with the standards for theobromine—N. N. R. Merck & Co., New York.

Barium Sulphate, P. W. R. for X-Ray Diagnosis.—A brand complying with the standards for barium sulphate for Roentgen-ray work—N. N. R. Powers-Weightman-Rosengarten Co., Philadelphia.

Barium Sulphate, Merck for X-Ray Diagnosis.—A brand complying with the standards for barium sulphate for Roentgen-ray work—N. N. R. Merck & Co., New York. (Jour. A. M. A., Jan. 13, 1917, p. 121.)

Acetylsalicylic Acid.—Acidum acetylsalicylicum. Aspirin. The acetyl derivative of salicylic acid. Dosage: 0.3 to 1.0 gm., repeated once in 3 hours until symptoms of salicylism are noted. It may be dis-

pensed as powders (in wax paper), wafers or capsules.

Iocamfen.—A liquid obtained by the interaction of iodine 10 parts, phenol 20 parts, and camphor 70 parts, containing about 7.25 per cent free iodine. Iocamfen is said to have antiseptic and germicidal properties of iodine and also the analgesic, stimulating and antiphlogistic properties of camphor and phenol. It is used in dressing wounds, etc. Iocamfen is also supplied as Iocamfen Ampules, containing 20 minims iocamfen. Schering & Glatz, New York (Jour. A. M. A., Jan. 20, 1917, p. 199).

Book Notices

THE CLINICS OF JOHN B. MURPHY, M.D., at Mercy Hospital, Chicago. Vol. V, No. 6 (December, 1916). Octavo of 217 pages, 47 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Published bi-monthly. Price per year, paper, \$8.00; cloth, \$12.00.

The last volume of the Murphy Clinics is off the press—the last work of the master surgeon.

Besides a portrait of Dr. Murphy, an editor's preface and tributes by several of the dead surgeon's friends, the volume contains among others, discussions on the following subjects: Osteosarcoma; Angioma of Lip; Ancient Injury to Skull With Focal Signs; Toxic Goiter With Melancholia; Posterior Luxation of Elbow; Ununited Fracture of Radius; Carcinoma of Breast; Adoption of an Attached Pedicled Flap for the Cure of an Impassable Stricture of the Urethra; Hydrocele, Osteomyelitis of Femur; Chronic Eburnative Osteitis of Femur; Sarcoma of Leg; Tuberculous Tenosynovitis of Peroneal Tendons.

The W. B. Saunders Company will follow the Murphy Clinics with The Surgical Clinics of Chicago. These will have the advantage of many clinicians. They will give the word for word teachings of several of the better known Chicago surgeons.

THE NERVO-MUSCULAR MECHANISM OF THE EYES AND ROUTINE IN EYE WORK, by G. C. Savage, M.D., author of New Truths in Ophthalmology (1893); of Ophthalmic Myology (1902-11); of Ophthalmic Neuro-Myology (1905); ex-president of the Nashville Academy of Medicine; ex-president of the Southern Medical Association; ex-chairman of Section of Ophthalmology of American Medical Association. Three full-page plates and four cuts. Published by the author, Nashville, Tenn. Price, \$1.00.

This little book consists of two lectures. One, dealing with the nervo-muscular mechanisms of the eyes, is technical—anatomical; the other, "Routine in Eye Work," deals largely with the system used in an office, and methods of conducting preliminary examination. It is an excellent article for the beginning practitioner.

Saving the Country \$200,000,000 a Year

**The Story of An Astonishing Invention Which Is Destined
to Revolutionize the World's Fuel and
Industrial Conditions.**

By PIERRE H. BOGARDUS

(Of Illustrated World Staff)

NOTE.—This publication has refrained from accepting investment announcements in the past, and we feel that in submitting the article that follows we are breaking our unwritten rule for good and sufficient reasons. The character of the proposition; the high standing of the men behind it; the opinions of experts of international standing endorsing the proposition and its practical and commercial value; the opportunities it offers for profits are such that we believe we are fully justified in accepting this announcement. We have investigated and found that the facts, as far as we can learn, are as represented. We offer it therefore for the consideration of our readers.—EDITOR.

I HAVE seen OPPORTUNITY.

I have seen written in white hot characters on the isinglass of a roaring furnace the word FORTUNE.

I have seen that which will revolutionize industrial conditions in the whole world.

I have seen TESTED and TRIED, so that even a layman can read its meaning, an invention that, I believe, will make wealth for an army.

I have stood at the dawning of a great era and been dazzled by the enormity of what this has brought into my mind, the possibilities it has revealed.

So must have felt those who witnessed the first flutterings of the human voice over Alexander Graham Bell's first telephone, or seen the dull glow of Edison's first incandescent light, or heard the crackling sputter of a message conveyed on the air by wireless as Marconi first tested his invention, or the thrill that marked the first flight of Wright's air bird as he launched it to prove to the world that flying in heavier than air machines was a solved success.

For this invention is, in its potential possibilities, as great or greater than any of these, for it solves a problem that means hundreds of millions of dollars of economies to all the world's fuel users.

An Epochal Invention

I could not help thinking as I stood by this roaring furnace demonstrating a new principle in heating that here was just such an OPPORTUNITY as had been offered by Bell, Edison, Marconi, Wright, Westinghouse and other great world inventors when they sought to interest capital in their epochal inventions.

I could not help wondering whether this invention would have to go through the same soul-trying periods of development due to lack of public faith that marked the early struggles of all revolutionary departures from conventional things.

"If the world could only see this testing plant," I said to myself, "there could be but one answer—SUCCESS." No one can witness what I witnessed and remain indifferent. You may not have that advantage, so I will try and tell what is being done every day in a demonstration plant on the West Side of Chicago, where the Powdered Coal Engineering and Equipment Company has in operation the first furnace ever operated by the Pruden Coal Carburetor in existence.

Nearly everyone knows that coal which produces the heat that develops power moves the world of commerce and industry.

Fuel Supply Is Limited

Nearly everyone knows too that the world's available supply of the coal now in use for producing heat is growing less at such a fast pace that already the engineers and inventors are struggling with the eternal problem of what to do for power in the near future when the coal supply will become so scarce that it will go to prohibitive prices.

Most people know that one principal cause of the rapidly diminishing supply of coal is the terrific wastage of the supply, due to the crude methods of turning coal into heat.

Fuel experts say that sixty per cent of the heat producing value of coal goes up the stack in UNCONSUMED COAL in the form of smoke burdened with fine particles of coal, in cinders which are about seventy per cent unconsumed coal, and in unconsumed gases which, if properly burned, would produce heat and power.

The factory or office building smokestack, with its belching column of inky smoke, is wasting tons of fuel every day. The squat stack of the locomotive, with its black, trailing plume of smoke, is wasting tons of unconsumed coal every day. The high stack of the steamer raising its panoply of sooty smoke that lingers on the horizon is wasting tons of unconsumed coal every day.

The pall of sooty black smoke that hangs over the cities, contributed to by every office building, apartment building, home and industrial plant, is actually worth hundreds of thousands of dollars in unconsumed coal.

\$500,000,000 Smoke Loss

The United States Government, which is not given to exaggerations in its statements, places the loss from this source at \$500,000,000 a year.

Just think of it—FIVE HUNDRED MILLION DOLLARS wasted in the United States alone EVERY YEAR.

Are those not figures to stagger the imagination? Is that not an appalling consideration in this era of so-called efficiency?

And the Pruden Coal Carburetor can and WILL put a stop to this monumental wastage, for it solves the problem of COMPLETE CARBURIZATION OF ALL THE COAL THAT GOES INTO THE FURNACE.

Now do you BEGIN to see what this astounding invention means to the world?

But read on.

One Billion for Fuel

The fuel bill of the United States FOR POWER ALONE is nearly ONE BILLION DOLLARS A YEAR. Yes, that is spelled correctly, ONE BILLION dollars for coal to make the wheels of com-

merce and industry go round in THIS COUNTRY ALONE.

And this is for POWER only, not for heating.

The heating bill is not much less.

Do you wonder that the coal supply is running so short that experts say we may be practically without coal in fifty years?

Do you believe that ANY INVENTION WHICH WILL DOUBLE OR TRIPLE THE POWER-PRODUCING VALUE OF COAL OFFERS YOU AND ALL THE WORLD A WONDERFUL OPPORTUNITY?

It doesn't take a mathematician to figure it out.

Yet that is what the Pruden Process will do, AND IS DOING in this demonstration plant I am going to tell you more about.

Value of Powdered Coal

The possibility of burning powdered coal has been agitated for a great many years. There are records showing that it had been attempted over 100 years ago. As long ago that fuel experts believed that if it was ever possible to find some way to burn pulverized coal a much hotter, better and cheaper heat could be produced. With the facilities available, it was practically impossible to do this successfully, and periodical attempts, made at frequent intervals ever since, proved equally futile.

To understand why powdered coal will, if properly burned, give more and better heat it is necessary to understand the principles of combustion.

Principles of Combustion

Combustion is produced by the combination of a substance with the oxygen in the air. Now, if you take a cubic inch of coal, that cubic inch of coal offers exactly SIX SQUARE INCHES of surface to the oxygen in the air. Only six square inches on which to effect that combination of the carbon in the coal with the oxygen in the air.

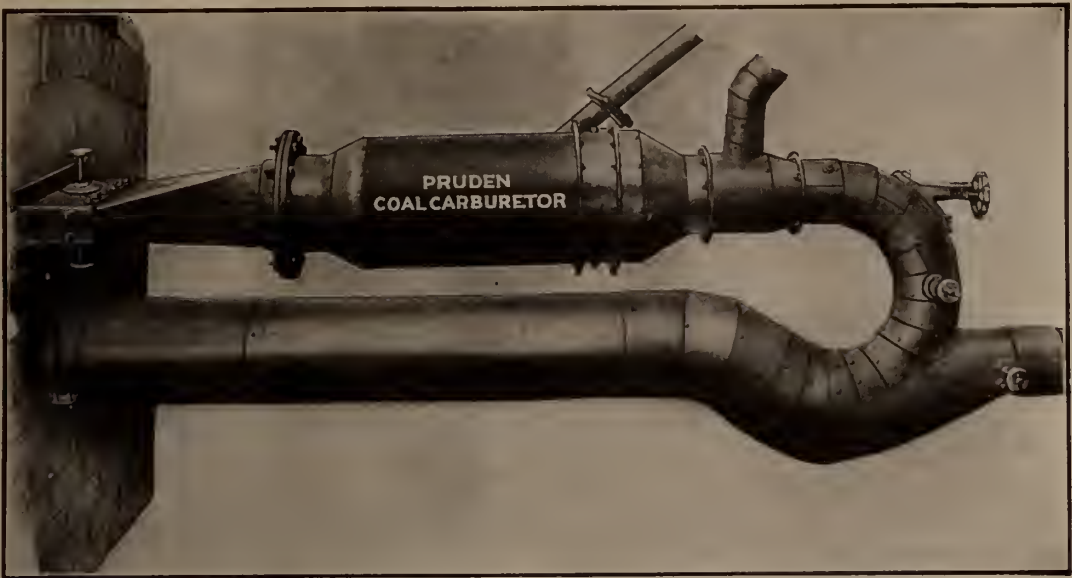
A cubic inch of coal reduced to powder offers from 20 to 25 SQUARE FEET of surface for combination with the oxygen in the air in the process of combustion or carburization.

Now do you begin to understand why powdered coal offers such advantages over lump coal?

About sixteen years ago Harry B. Pruden became interested in the problem of powdered coal.

Like many other men in business, he had learned of the fuel problem. One day he witnessed some experiments made in an attempt to burn powdered coal by projecting it into the firing chamber on a jet of steam.

He watched the experiment with deep interest. He soon saw that the steam destroyed the heating value of the coal by surrounding it with too much moisture.



THE PRUDEN POWDERED COAL CARBURETOR SHOWN IN DETAIL

Photograph of the Pruden Coal Carburetor as installed in the Chicago Demonstration plant now in successful operation. This is the KEY to the whole process of burning powdered coal by the Pruden process. In this carburetor the powdered coal and air are so mixed as to insure COMPLETE combustion of ALL THE COAL

It gave him an idea. Mr. Pruden was at that time a salesman. A born mechanic, finding his pleasure in experimental work of an inventive nature, devoting his leisure to a little work-shop where he tinkered at every available moment, he took to studying the principle on which gasoline is carburized to furnish motive power for automobiles.

Birth of a Big Idea

Like a good inventor, he studied the gasoline carburetor. He studied the principle back of it. He discovered that gasoline was made powerful by combining with it a required quantity of air.

Now, thought Mr. Pruden, if I inject powdered coal THOROUGHLY MIXED WITH AIR into my firing chamber, I can insure COMPLETE AND IMMEDIATE CARBURIZATION OF EVERY PARTICLE IN THE COAL.

So he started to work, inventing a method of mixing the coal dust and the air in proper proportions, a practical coal carburetor.

To develop a practical coal carburetor took years of study. Wherever Mr. Pruden's business took him, for he was a successful business man, there Mr. Pruden built a small laboratory for his experiments. Piece by piece, detail by detail, he worked out his plan. As soon as one detail was completed it was tested under all sorts of conditions. Scores of experiments proved failures, but each failure was a step nearer to success.

The problem of getting the coal in the right con-

dition for the work was a serious one. Scores, perhaps hundreds, of experiments failed because the fact had not been revealed that in order to get perfect results the powdered coal must be absolutely dry. Coal absorbs moisture very easily. Then it was hard to get coal powdered finely enough to insure the best results. All this meant more experiments. At last coal, ground to the fineness of an almost impalpable dust, and dry of all moisture, was secured by Mr. Pruden and he tested it in his small temporary experimental carburetor.

Experiment a Success

The machine was set going, the firing chamber made ready by placing a handful of waste saturated with oil before the spout and igniting it, and then the coal was turned into the carburetor. Instantly the black flow caught fire from the burning waste and a three-foot flame poured out of the nozzle of the carburetor into the fire chamber. As the heat increased the flame lengthened, until the whole fire chamber was a roaring mass of flames, which gradually grew lighter in color until it was finally white with the white flame of terrific heat.

The Pruden Carburetor for firing powdered coal was a SUCCESS.

Immediately Mr. Pruden set about constructing a real demonstration plant. He started in designing it, and when it was completed he gave up his business connections and came to Chicago.

A factory site was secured and the first Powdered

Coal Power Plant was started. A complete installation was made, including a powdering and drying equipment and a reverberatory furnace, such as is used in the treatment of metals.

It was the first plant of PRACTICAL size built, and the first firing of it marked an event. A ton of mine waste, the tailings of the mines which has a value at the mine of 80 to 90 cents a ton, was bought; the first few pounds were dried, then run through the powdering machine, the powdered coal was sifted through a screen so fine that there were 200 meshes to the inch, and then fed into the hopper.

The machine was started; a handful of oil-soaked waste thrown in and ignited and the feed started. As the powdered coal flew into the firing chamber it ignited instantly and a jet of flame sprang from the nozzle of the carburetor as it had done on the first makeshift machine. As the fire chamber grew warmer, the flame grew in length until it was shooting all through the great furnace, as the isinglass windows, let into the side for observation purposes, indicated, and it was roaring into the chimney.

Burns Without Smoke

When the "window" in the chimney indicated that the flames had gone beyond the fire chamber, a rush was made to see what story the smokestack would tell.

All that the chimney showed to indicate that there was a fire in the furnace below was a pale vapor rising from it which was dissipated ten feet from the top of the stack.

Combustion was ABSOLUTELY COMPLETE; not an atom of unconsumed coal was going out of the stack.

Satisfied that his demonstrating installation was a success, Mr. Pruden set about organizing his company to promote his invention.

So far he had kept his plans pretty much to himself. He had used his own capital so far. He had blacked his own invention with his own money. He had taken all the risks. He had now a plant which would PROVE EVERY CLAIM HE MADE for his invention.

Mr. Pruden is, as I have already told you, a business man. He has seen other inventors stripped of the fruits of their brains by unscrupulous financial men. He has seen men of wealth make millions out of inventions, while the inventors either were stripped of everything or were forced to be satisfied with a paltry pittance.

Financing the Invention

With such an experimental plant in operation and the practical solution of a problem that meant hundreds of millions of dollars, he could have gone to the financial powers, shown what he had and secured all the money he wanted AT A PRICE.



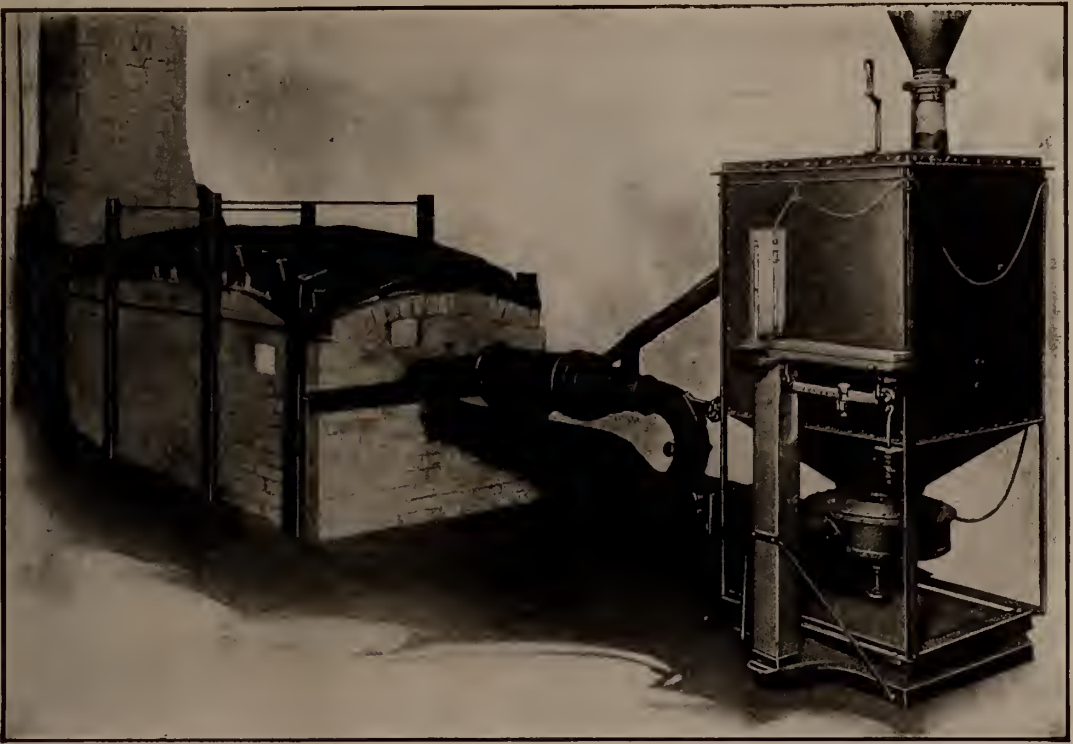
ALONZO G. KINYON

Mr. Kinyon was superintendent of locomotive power of the Seaboard Airline Railroad when he came to Chicago to investigate the Pruden invention for his road. He was so impressed he joined Mr. Pruden as consulting engineer.

THAT PRICE, Mr. Pruden decided, he WOULD NOT PAY, for the price, he knew, would be control of the company he had organized.

In casting about for financial support, he met Mr. P. M. Power, a banker, head of the firm of Power-Wall Company, industrial bankers in the Railway Exchange Building, Chicago, and a brilliant, aggressive and clean-cut type of business man.

He took Mr. Power to his experimental plant and showed him the furnace. He had it started and proved what he claimed. He showed Mr. Power that with 90 cent coal he was doing the work that double the amount of \$3 coal could do. One ton of mine waste was producing the amount of heat that two tons of \$3 coal would be required to produce under the old wasteful methods. He showed him the stack free of smoke, he showed him a furnace floor free of cinders, he showed him heat of tremendous intensity produced in the time it takes an ordinary furnace to get warmed up. He showed him the doing away entirely with stokers or firemen, with one man having plenty of leisure to look after half a dozen or more installations. He showed him in HARD FIGURES, such as a banker could understand, why the Pruden Process



PRUDEN PROCESS INSTALLATION AT DEMONSTRATION PLANT

Here is a photographic view of the Pruden installation at the company's demonstration plant in Chicago. At the right is the hopper, then the carburetor and then the furnace.

could cut at least \$200,000,000 a year off the fuel bills of the United States.

He showed him the millions of tons of waste coal now often destroyed at many mines because useless as fuel. He showed him reports of BILLIONS OF TONS of low-grade lignite coals, which are NOT EVEN MINED—and which the Pruden Process will convert into good fuel.

And when he had finished telling his story, Mr. Power pulled out a fountain pen and a check book and wrote a check for \$5,000, which he handed to Mr. Pruden to help him perfect his organization and go ahead with his plans.

Mr. Power then offered to help finance the company AT MR. PRUDEN'S OWN TERMS.

A Strong Organization

Mr. Pruden's first move was to surround himself with capable men. He knew that his own limited engineering experience and knowledge would require that he have men capable of handling the many problems that would present themselves in adapting the Pruden Process to the various conditions which would arise.

From the General Electric Company he secured Frederick W. Cunningham, a young engineer of

great promise. Mr. Cunningham is a graduated electrical engineer from Princeton College; he is a bachelor of science of the same institution and took a course in practical commercial chemistry at Wisconsin University, which gave him the title of Ph. D. He had made an enviable record with the General Electric and became so enthusiastic over the prospects of Powdered Coal as a fuel by the Pruden process that he begged for a chance.

About that time Mr. Alonzo G. Kinyon, Superintendent of Locomotive Operation for the Seaboard Air Line R. R., arrived in Chicago to investigate the Pruden Process as to its applicability to railroad locomotives. Mr. Kinyon is one of the really big men in railroad fuel circles. It is said that his improvements and the economical methods he introduced in the Air Line saved that road half a million dollars a year on their fuel bill.

Gets Famous Fuel Expert

He asked for a demonstration of the Pruden Process, and, after watching it in all its aspects for several days, begged for a chance to ally himself with Mr. Pruden.

Mr. Kinyon's offer was accepted and he is now in charge of the demonstration plant and will be the

consulting authority on all problems for firing locomotive engines by the Pruden Process.

Another powdered coal expert added to the strong list of experts in charge of operation is Mr. Norman L. Warford. Mr. Warford comes to the Powdered Coal E. & E. Co. from the Anaconda Copper Mining Company of Anaconda, Montana. Mr. Warford has been one of the pioneers of the powdered coal field. He was one of the first to start using powdered coal in making cement in the old days when the powdered coal and the cement clay were injected into the rotary burners for firing. He built several cement plants and his success with powdered coal won him a place with the Anaconda Copper Mining Company. His introduction of powdered coal in the smelting of copper ores reduced the fuel bills of that company over \$25,000 A MONTH, it is claimed. This company has a capacity of 1,000 tons a day. He made one ton of powdered coal melt SIX AND ONE-HALF TONS of ore, while by old firing methods FOUR TONS was about all they could do. Mr. Warford was engineer in charge of the powdered coal department of this great company. His interest in the Pruden Processes caused him to give up his highly-paid Anaconda position to push the interests of the Powdered Coal Engineering & Equipment Company.

Having now considered the product—the Pruden Carburetor and Process for burning Powdered Coal—and the men associated with Mr. Pruden in his undertakings, it is worth considering the possibilities of the company as an investment, for it is an investment that YOU should consider this company.

As I already told you, Mr. Pruden refuses ABSOLUTELY to turn over the control of his company to any financier or group of financiers.

Opportunity for Investment

To secure the necessary funds for developing the company, equipping a larger plant, building installations of all kinds and extending the sphere of the company to all parts of the world, Mr. Pruden and his associates of the Powdered Coal Engineering and Equipment Company have entrusted the Power-Wall Company to sell the necessary amount of stock in the company, with the provision and agreement that in no case will subscriptions be accepted for more than 500 shares.

The Powdered Coal Engineering and Equipment Company is capitalized for \$3,000,000—all common stock, fully paid and non-assessable, which shares equally in all dividends and earnings of the company.

The company is incorporated under the laws of Delaware, which relieve all stockholders of any liabilities over and above the par value of their

holdings. The stock, when paid for, is therefore non-assessable.

This common stock of the company is fully protected by the assets, patents, installations, property holdings, etc., of the company, and is now being offered to the investing public AT \$12 a SHARE.

Some Startling Facts

If you have not been sufficiently interested so far in the enormous possibilities of the stock of this company as an investment, a few FACTS may be brought out that will interest you.

Everyone knows what enormous fortunes have been made by the holders of some of the stocks of companies that have had phenomenal growths. One thing that you may not have thought about, however, is the fact that nearly all the great gains in value and phenomenal dividends have been paid by industries developing FUNDAMENTAL necessities of life.

Those who have made the biggest gains in these stocks were those who combined FORESIGHT with OPPORTUNITY.

If Alexander Graham Bell had come to you when he first demonstrated his telephone—imperfect as it was—and had asked you to subscribe for stock in it, the chances are that you would have laughed at him. And if he had succeeded in convincing you that you really and truly were turning down a solid opportunity for large profits from your investment you doubtless would have been skeptical and would have tried to get off by investing JUST AS LITTLE AS POSSIBLE.

What Others Have Earned

The same might be said of Edison, of Westinghouse, of Welsbach, of Burroughs, of Mergenthaler, of Dunlap, of Ford, and goodness only knows how many of the others whose inventions have made fortunes. Just to give you an idea what even a small investment in any of the stocks of these concerns would have earned, here is a list from Moody's Manual, an authoritative source, showing what \$100 invested in any of the few leading FUNDAMENTAL companies would have brought in:

Bell Telephone	\$54,000.00
Western Union Telegraph.....	15,000.00
Jenney Coupler	18,680.00
Welsbach Gas Mantle.....	50,000.00
American Radiator Co.....	49,000.00
DeLong Hook and Eye Co.....	10,000.00
Burroughs Adding Machine.....	41,340.00
National Cash Register Co.....	42,870.00
Underwood Typewriter Co.....	38,325.00
Dunlop Rubber Tire Co.....	25,000.00
Mergenthaler Linotype Co.....	25,000.00
Westinghouse Airbrake Co.....	47,836.00

It is reported that every \$1,000.00 invested in the



NORMAN L. WARFORD

Mr. Warford was engineer in charge of the powdered coal department of the Anaconda Copper Mining Company of Anaconda, Montana, where he had effected economies by the introduction of powdered coal firing that are said to have saved the company \$25,000 a month. Mr. Warford is a national authority on this subject.

original Ford Motor Company has paid \$3,000,000.00. The estimate sounds impossible, but the facts are pretty well known that Ford started with a cash capital of \$28,000.00, which has grown in twelve years into a company having assets rated around \$88,000,000.00, with a well authenticated report that Ford refused an actual offer of \$200,000,000 for his plant, business and good will. You can figure it out for yourself what an original \$100 investment in the Ford Motor Company stock would have grown to had Mr. Ford accepted this offer of \$200,000,000.00.

And you must remember that all these companies, including the Ford company, had an enormous amount of educational work to do in establishing the DEMAND for their product.

THIS IS UNNECESSARY IN THE CASE OF THE PRUDEN PROCESS, for which a READY DEMAND exists, and has existed ever since coal was first used as a fuel.

In fact, there are on file in Mr. Pruden's safe scores of letters asking about the success of his work and HOW SOON he will be in a position to install his process for using powdered coal.

Possibilities of This Company

To give an idea of the possibilities of this company

There are approximately 300,000 industrial concerns in this country that need it.

There are in active operation in the United States alone 65,000 railroad locomotives that need it.

There are tens of thousands of large buildings operating their own heat and power plants that need it.

There are thousands of mines of all kinds in various parts of the country that need it.

There are scores of steamships that need it.

There are thousands of water and light plants that need it.

There are enormous metal working plants all the country over that need it.

And all those who realize that a Pruden installation would mean a saving of 20 to 40 per cent of their fuel bills would be willing to pay well to have one installed.

Is it to be wondered at that everyone connected with the Powdered Coal Engineering and Equipment Company is chock full of such convincing enthusiasm that to talk to any member of the company is to feel a shock of anticipatory excitement thrilling through every fiber?

And these are cold, scientific, level-headed men who are not given to enthusiasm. They are men who compute in hard figures and count their results in decimals.

Men of Broad Vision

Theirs is not the enthusiasm of the hot-headed carried away by the spur of a suddenly enlightened imagination. They are clear-eyed business men with VISION.

It takes VISION to compute the possibilities of any great enterprise.

The genius who stretched twin threads of steel across the great Western prairies had VISION. He foresaw the endless chain of trains rushing across these vast wastes of land, bringing civilization, humanity, ingenuity and courage to develop the dormant possibilities of this great continent beyond the Father of Waters.

Bell saw the furthest ends of the earth drawn together over a slender wire of copper, with people talking across space as easily as you talk to a friend across the dinner table.

Marconi saw his messages carried through the air in the twinkling of an eye.

Edison saw his incandescent electric lamps lighting the farthestmost portions of the outer darkness and twinkling in millions of homes and offices and factories, turning darkness into light.

Watt may have seen in his sputtering tea kettle's steam the palatial steamers and crashing trains that

have brought near to each other the peoples of the remote spaces and have populated the deserts.

Sees a Smokeless City

I am not imaginative, but my mind's eye conjured visions of beautiful white cities glistening in the sunlight without a wisp of smoke to rob the air of its purity or to defile them with filthy smoke laden with coal, soot and cinders. I saw billions of tons of the low grade lignite coals adding to the world's fuel supply. I saw the cost of power of this great nation and all the nations of the earth reduced by half. I saw the millions of tons of mine waste, now being thrown on the dump heaps, turned into heat and power to drive the wheels of commerce and industry. I saw men freed of the slavery of the stoke holes of the great ships.

I saw the cost of producing of power reduced so low that not even water power could be produced as cheaply. I saw living costs reduced everywhere. And I saw the most criminal waste in the world today remedied by the invention of this quiet, efficient man of brains.

A Talk with Mr. Pruden

I talked to Mr. Pruden. I expected to find the usual inventor. I found instead a cool, keen-eyed and wide-awake business man. I had expected the heroics one somehow connects with men who do big things. I found instead a resolute, self-contained and thoroughly practical man. He told me his story, much as I have told it to you already. He told me how as a boy his playthings had been mechanical toys, how he began to spend his leisure hours working out mechanical problems.

He told me that he knew he could make money working, more than he could make for a long time on anything he might invent, so he went to work. He sold goods on the road. He sold automobiles. He was the manager of automobile distributing offices. He organized and developed a big automobile sales agency. But in spite of his success his heart was not in the work he was doing so well. His heart was in his little shop where he spent all the time that his business did not require.

He told me of his first interest in powdered coal problems sixteen or more years ago and how he first conceived the idea of a practical coal carburetor. He told me how he developed this and the difficulties he encountered. He told me of those early struggles to complete his invention to its present practical usefulness. And he told me how he had struggled and denied himself all luxuries so that he could put every surplus dollar he could spare into this work which was to be his life achievement.

A Heartbreaking Struggle

He told me how people had laughed at his plans and how big men who would now like mighty well to have listened to him turned deaf ears to his pleas when he was still struggling and needed capital. And he told me how he had made his resolve then to give no financier or set of financiers a chance to take from him his life work by those methods so well known to those familiar with the financiering of inventions.

And when I asked him to summarize for me the salient points of the value of his invention, he told me:

Today great economic problems are all solved scientifically.

"The shortage of coal and oil is actual or will be very soon. The world's supply of these fuels is limited. Discoveries are growing less every day.

"The question then is to discover NEW ECONOMIES.

"It is better to **SAVE ONE-FOURTH OF THE FUEL** than it is to discover one-fourth more supplies.

"Ever since steam has been employed as power, **SMOKE** has been preaching its sermon of **WARNINGS AGAINST WASTE**.

"Smoke is **UNCONSUMED FUEL**.

"The old methods of firing are **WASTEFUL METHODS**.

"The fuel in the firebox was only **PARTLY CONSUMED**. The balance was swept out, and is being swept out, through the flues and chimneys' **UNCONSUMED**.

"Most of the **VOLATILE GASES** were not liberated from the coal until they had reached the front end of the firebox, then it was **TOO LATE** for them to burn. **MORE WASTE**.

"The draft necessary to burn **SOME OF THE COAL** was always sufficient to carry the balance of it out of the stack, and this **WAS EQUALLY TRUE ABOUT PETROLEUM**.

"To gain **SOME HEAT** consumers of power fuel have been **THROWING AWAY BILLIONS** in the form of waste—dissipating valuable fuel—**JUST AS VALUABLE AS THE FUEL CONSUMED**—adding to the smoke nuisance and depriving themselves of **POWER**.

"To gain **ONE HORSEPOWER** many plants are **WASTING TWO HORSEPOWER** through the methods of firing because there was **NO BETTER METHOD**.

"True progress in industrial life comes from true economy. It is basic foundation of efficiency.

"The Pruden process will save the United States \$200,000,000 a year or **MORE** as power needs expand.

"The American business man is the livest wire in the world. He appreciates true economy at its



THE NEW PLANT OF THE POWDERED COAL COMPANY

This is the architect's drawing of the new plant of the Powdered Coal Engineering & Equipment Company. Here will be built the installations for all purposes to which this great invention is applicable. The inset picture is of Mr. Harry B. Pruden, inventor of the Pruden Coal Carburetor and of the powdered coal process described in this article.

true value. Will he spend TEN PER CENT. to save \$200,000,000 that is now wanton waste? I think so, don't you?

"I believe that this process will revolutionize industrial conditions in the United States. If you could see the mass of data, letters, inquiries from big industrial enterprises, railroads, scientific journals and trade papers that I have received, you would begin to understand why I feel so coldly confident in the future of this process. I have been through my periods of exaltation, of enthusiasm, of brain whirl. Today the enormous realities have filled me with cold conviction of our inevitable success.

"It is only a question of HOW SOON we can get started. That depends on how soon we are provided with the necessary capital to go ahead with our work.

"Once we are in position to accept orders on a large scale, our problem will be NOT TO CREATE a MARKET, as is ordinarily the case, but to FILL ORDERS.

"We have convincing evidence that our business growth will be measured solely by our plant capacity. ADEQUATE PLANT CAPACITY is therefore our chief problem and the answer to this

problem is in this issue of stock which we are now offering through Messrs. Power-Wall Company."

Fuel Men Impressed

A significant indication that Mr. Pruden's statements are coldly conservative is given by the result of last spring's convention of the International Railway Fuel Association, which met in Chicago May 17 to 20 at the La Salle Hotel.

The convention had hardly come to order before it became evident that it was going to resolve itself into a Powdered Coal Convention. No other subject was considered the first day and finally the entire convention adjourned to the demonstration plant of the Powdered Coal Engineering and Equipment Company, where Mr. Kinyon proceeded to make a demonstration that opened the eyes of the fuel experts present.

A report of the convention published in one of the scientific papers makes the enormous interest of this problem clear to all who read.

Today every railroad in the country is considering this problem and it is more than probable that the first orders the company will have to fill will be to equip railroad locomotives with Pruden installations.

It is a matter of record that the roads centering in Chicago are paying \$65,000 a year in salaries to smoke inspectors to keep down the smoke nuisance, and with mighty small results.

An installation of one Pruden equipment on one locomotive will inevitably show such enormous economies that it won't be long before the railroad will have to equip the whole locomotive force of the road with the appliances. And one installation in any industrial center will sell many more as soon as it proves its value, and that will be as soon as it has run long enough to demonstrate its great economy of operation.

Enormous Earning Power

As to the earning possibilities of the Powdered Coal Engineering and Equipment Company, these loom so large that even enthusiastic estimates pale into insignificance compared to the actual figures.

The conservative basis on which it is planned to operate, the modest estimates of expenditures outlined, the economic character of the work to be done and the class of the men who will be in control of the active management of the company all insure the largest results from the smallest possible amount of money actually put into the development of the company.

The company is only seeking to raise \$500,000. This is a small sum when the results anticipated from this investment are considered. It must be remembered that **ALL THE EXPERIMENTAL WORK HAS BEEN DONE**. All the heavy burden of preliminary investigation, experimenting, building of experimental machines, making of patterns and laborious work necessary to perfecting the invention has all been carried by Mr. Pruden and paid for out of his own resources.

He goes to YOU with a perfected, tested and PROVED invention that is past the experimental stage.

He goes to YOU with an IMMEDIATE MARKET waiting eagerly for his product.

He offers YOU the opportunity to invest NOW before the company is ready to sell its product and gives you the opportunity to get at \$12 a share stock that should inside of a year be worth much more.

He offers you a FUNDAMENTAL NECESSITY of life. And a patented and protected process that will grow more valuable EVERY DAY it serves the public because every day will see its growth spread and its opportunities increase.

He offers you a chance NOW to get at \$12 a share stock that in a year you probably will not be able to buy for many times that. And he goes to you frankly and honestly without reservations, telling you just what he has to offer and just what the chances are for its success.



FRED W. CUNNINGHAM

This brilliant young engineer left the General Electric to take up the engineering problems of the Pruden Powdered Coal processes. He will aid in the solving of fuel problems for the company.

An Honest Statement

So absolutely square and honest is Mr. Pruden, and are the men associated with him, that none would predict the possibility of immediate dividends. No promise of dividends within an unreasonable period is made. It would not be the part of good management to deprive an enterprise of this magnitude of necessary capital during its youth in order to soothe or satisfy a short-sighted stockholder.

This company is a BUSINESS, not a lottery. It is not organized for the purpose of stock manipulation. If it had been it would have been in the hands of the financial interests long ago. It is an enterprise that for magnificent prospects has probably never been equalled. It is by no means unlikely that substantial dividends may be earned within the first twelve months, but the growth this would indicate would also necessitate plant enlargements and increased facilities for production which would in all probability prevent a dividend being paid. But this would be to the advantage of every stockholder whose stock in the company would become more valuable.



VISITORS AT THE CARROLL AVENUE DEMONSTRATION PLANT

Every day almost the demonstration plant in Chicago is crowded with men and women interested in this wonderful new invention. Here they will see practical demonstrations of the value of this invention.

A Stock for Investment

This should be a stock for investment, not merely for speculation. Its dividends, great as they ought to be, will be only a small part of the value this stock should represent to you in its continued enhancement in value.

Owing to the character of the installations very little money will be tied up in manufactured stock, as in most businesses. Here nearly every installation will have to be made to order to fit special requirements. It will be largely an engineering problem asking for different solutions and individual requirements. There will be no "over-production" with resultant losses. Whatever the company produces will be ON ORDERS and will be paid for under contract.

The company proposes as far as is consistent with the satisfactory handling of the business to make provisions for increased output out of the earnings of the company, thus "turning over" the original working capital and making it do its utmost in earning power. This will make every share of the Treasury Stock now being offered increasingly valuable.

This stock offering amounts to less than 25 per cent. of the authorized capital and the company is

anxious not to have to offer any more treasury stock after the present issue has been subscribed. In other words, the company plans to keep the business as far as possible a "close corporation," a "family affair," as it were, confined to ownership among the original stockholders whose faith and investments of money at this early period in the life of the company will have provided the necessary capital to put the company on a substantial basis.

It is such a policy which makes fortunes for its stockholders.

All Profit-Sharing Stock

The fact that all the stock is Common Stock, sharing equally in all profits and carrying with it voting rights, giving each stockholder a voice in the affairs of the company, and making stockholders the actual owners of the business with the power to attend all stockholders' meetings, enjoying ALL profits without any preferred stock dividends to pay first out of the earnings, makes this an unusually attractive proposition.

The Power-Wall Company, acting as underwriters of the \$500,000 worth of the treasury stock of the company now offered for sale, is a banking firm of the highest repute. It is composed of clean,

aggressive, enterprising men of sound business judgment and mature experience. They are not only pinning their good faith and reputation to the proposition, but are investing their time, money and efforts in the development of this enterprise, which they endorse without qualifications.

Before accepting the responsibility of marketing this stock they went into a most careful and exhaustive investigation of the possibilities, practicability and soundness of the invention. The best experts were consulted, the most complete tests were made, the market for the product of the company was ascertained. Although members of the firm had made investments in the company they would not undertake to place it before the public without first putting aside all questions of doubt as to its real merit. After all their investigations they were ready to go behind the Powdered Coal Engineering and Equipment Company with all their resources and influence. They left **NOTHING TO CHANCE** before making a public appeal.

Important to Investors

All this is very important to the prospective investor who rarely has the time or money necessary to look up an investment as thoroughly as it should be investigated.

The mere fact that this big banking house is backing this issue with its reputation is convincing proof of its merit.

The question in your mind should not be whether you can afford to invest your money in this stock but **HOW MUCH** can you afford to invest. If you have the means you simply **CAN NOT AFFORD NOT TO TAKE AS MUCH AS YOUR MEANS WILL PERMIT.**

It is said that **OPPORTUNITY** knocks once at everyone's door. To overlook the **OPPORTUNITY** that is hammering **NOW** at your door is to face a life disappointment.

To invest **NOW** is to qualify for **ALL** the profits that will come from this investment. To wait until the development of the company increases the value of its stock is to lose the chance of great gains, and probably any chance at all to become a stockholder in a company whose name is going to be written very large in the history of American—nay, of world industries.

Where You Stand NOW

You stand in the position **TODAY** of the man who years ago had been offered a chance to invest in Bell Telephone stock, Edison stock, Westinghouse stock, Ford stock, or the stock of any of the phenomenally successful companies that have made millionaires of their original investors.

Doubtless thousands of people who were offered

such an **OPPORTUNITY** as you have today refused to heed the call of **OPPORTUNITY** and lived to regret their lack of foresight or their lack of courage to invest. Later when the companies were developed and the stock they had been offered at a low price jumped to incredible heights they saw others reap the reward they might have garnered. **IT WAS TOO LATE THEN. FORTUNE, OPPORTUNITY,** had knocked at their doors to deaf ears.

This is an opportunity where an investment of a few hundred dollars can make a man independent for life, fill his old age with the comforts every man and woman craves, build a rampart against want and privation in the declining days of life.

Invest for Safety Only

A man can not be too careful how he invests his money. But he should invest where the utmost of safety and the greatest possibilities of gain are offered.

A company like the Powdered Coal Engineering and Equipment Company, with its unequalled outlook, its guaranteed market, its **PROVED SUCCESS**, its wonderful field, its safety due to the fact that it fills one of the great economical needs of the whole world, offers the maximum of both these requisites.

To invest **NOW** is to be foresighted. Not to invest is to miss an opportunity that will never be repeated.

There is an old adage about an ounce of prevention being better than a pound of cure. It might be paraphrased "an ounce of foresight is worth a ton of hindsight."

Foresight makes millionaires.

You'll find plenty of men with hindsight in the bread line.

Which do you select?

A Solid Investment

As investments go, there is a character to this stock now offered you that words cannot quite describe. It is the strength of a **WORLD NECESSITY** made practical. It is the honest merit of a cleanly built, honestly planned and honestly managed company, organized for honest purposes and not for exploitation or speculation.

The Powdered Coal Engineering and Equipment Company is clean and straight from foundation to cap-sheaf. It offers opportunities for enormous earnings such as few companies have ever offered. It is honestly and capably officered and the men who are in charge of its actual operation are practical and competent.

Whether you accept this opportunity to invest in



WASTE COAL POURING FROM STACKS OF TUG AND STEAMER

This is all waste coal which the Pruden Coal Carburetor and process for burning powdered coal will save. It saves coal and it saves the damage from smoke.

the company's stock or not will not alter its eventual chances for success; it is going to succeed if human ingenuity, courage and skill, coupled with a world important invention, can win success.

It is a question of whether YOU want to share in the success of this great company.

It is a question of whether YOU want to share in what promises to be enormous earnings.

It is a question of whether you will accept this offer NOW or live to regret your failure to grasp OPPORTUNITY when it came to your door and offered you this wonderful chance.

A Splendid Opportunity

If you have the money you can't afford not to take as much of this stock as your means will permit. Don't live to say, like those who refused Bell, Edison, Ford, Dunlap, Welsbach and others whose names are world famous, that if their foresight had been as good as their hindsight they might now be comfortably well off.

Money in savings where it pays a small interest

never made anyone rich until it was invested. A few hundred dollars invested RIGHT have lifted many a man from obscure poverty to wealth, from struggling and privation to ease and luxury.

Courage and Opportunity

Fear is the WORM that eats the heart out of courage. No man or woman who lets FEAR and DOUBT sit at the helm of life will ever be anything but a groveling WISHER, always wishing for something BIG to turn up, yet when the chance does come never having the COURAGE to grasp that chance.

Attached is an application blank. Sign it NOW. If you are as eager for this investment as you should be, SEND your check, bank draft or money order for the stock you want. It is now \$12 a share. You can accept it with the condition that if after 15 days' investigation you are not satisfied for any reason whatever you can have your money back on return of the stock. If you can't pay all down, pay \$2.00 on each share of stock you want

and the company will arrange for you to pay the balance in installments.

BUT DO IT NOW! Tomorrow you may not have the chance.

Stock to Advance in Price

Since the original announcement of this issue of the stock of the Powdered Coal Engineering and Equipment Company there has been such a big demand for it as an investment that the issue has been nearly subscribed. After March 15th the price of this stock will probably advance to \$15 a share instead of \$12, its present price. Had you bought from the first announcement you would already have had a profit of \$2.00 per share. This advance in price is caused by the growing value of this stock which is becoming more valuable every day with the development of the company's plans.

Do not delay accepting this offer. Make a reservation NOW, if you are in doubt, then investigate all you want. Write to any bank, rating agency, etc., and get a report on the company, on Mr. Pruden, on the banking firm handling this issue of stock, and if you are not satisfied the Power-Wall Company will refund your money without hesitation.

If you reserve your stock now you will be protected against the next advance in the price of this stock.

A Statement by the Power-Wall Co.

Before accepting this issue of stock for public sale we made the most thorough and painstaking investigation of the process, the company, its management and its prospects. Experts were consulted, the legality of the issue was determined, the reputations of the men behind the company were scrutinized. **WE NOW ENDORSE IT WITHOUT QUALIFICATIONS.** We believe it is a **SAFE, SOUND AND SPLENDID INVESTMENT**, capable of earning surprising returns, and gladly court the most exacting scrutiny of the stock, the company, the product, the prospects. In order to give prospective investors every opportunity to buy at the present low price we are accepting reservations accompanied by \$2 on every share desired and will hold this for 15 days subject to your wishes. If, after investigating, you are not satisfied, we will return your money. We advise early action because March 15th the present price offer of \$12 a share may expire. March 15th the price of this stock will probably be \$15 a share and it will doubtless go higher very soon.

THE POWER-WALL CO.

FILL OUT AND MAIL THIS COUPON NOW

THE POWER-WALL CO., Industrial Bankers,

525 to 550 Railway Exchange Building, Chicago, Ill.

Gentlemen:—I wish to subscribe for.....shares of the **POWDERED COAL ENGINEERING & EQUIPMENT COMPANY**, owners of the Pruden patents for firing powdered coal, at \$12.00 per share—par \$10.00—fully paid and non-assessable. I enclose herewith my remittance for \$..... in ^{part} full payment of same. I do this with the understanding that if I am dissatisfied for any reason I will return this stock in 15 days and you are to refund my money. Please send me full particulars.

(NAME)

(ADDRESS)

(P. O.)(STATE)

NOTE—Should you be unable to pay cash for all the stock you wish, send \$2.00 on each share with your reservation and you can pay the balance in 5 equal monthly payments of \$2.00 for each share you want, which gives you six months' time.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI

CHICAGO, ILL., MARCH, 1917

No. 3

Original Articles

THE BIO-CHEMISTRY OF TOPICAL APPLICATIONS WITH SPECIAL REFERENCES TO THE USE OF BORIC ACID IN SEPTIC INFECTIONS.*

EDWARD H. OCHSNER, B. S., M. D.,
CHICAGO.

The laws governing the absorption of local applications to the skin have been the subject of considerable investigation and much controversy.

Something over twenty years ago I became interested in the question as to the relative value of boric acid and other wet dressings in the treatment of septic infections. After considerable clinical experience and numerous comparisons with other methods of treatment I became convinced that if boric acid is used in a saturated aqueous solution it is very effective in certain types of infection.

After I became thoroughly convinced that my observation as to the efficacy of boric acid as a wet dressing was correct, I became curious to know why it was effective and why a saturated solution was much more effective than an unsaturated one. I then took up the study of osmosis and dialysis and the meaning of the words "Iso-osmotic" and "Iso-tonic." I soon came to the conclusion, however, that these terms were being very loosely employed in the literature, that no two writers used them exactly in the same sense, and I became further convinced that the laws of physics dealing with dialysis and osmosis were probably based on insufficient experimental data and were consequently incorrect. At this stage of my investigation I turned to my old teacher, Prof. Daniells, for assistance and advice. He referred me to one of his assistants, Prof. Louis Kahlenberg, whose specialty at that time was physical chemistry and who now is head

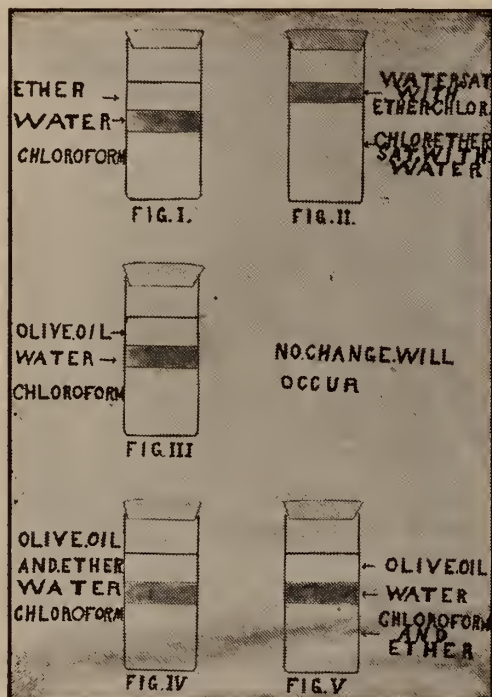
of the Department of Chemistry of the University of Wisconsin. Prof. Kahlenberg made a great number of experiments in order to determine the laws which govern osmosis and dialysis, and after several months of study and experimentation corroborated my suspicion that the laws, as heretofore stated in works upon this subject, did not accurately state the facts.

As I am going to quote rather extensively from Prof. Kahlenberg's monograph "On the Nature of the Process of Osmosis and Osmotic Pressure with Observations Concerning Dialysis" and from our correspondence, I deem it but fair to him as well as to myself to make these preliminary statements.

Prof. Kahlenberg's experiments and observations covered a period of several years, were very painstaking, thorough and extensive, and he has been so fortunate as to work the whole matter out, put the whole subject on a secure scientific basis and to formulate new and tenable laws in reference to osmosis and dialysis. Among other things, he has proven, first, that the physical theory of osmosis, according to which osmotic pressure, so-called, was due to the bombardment of a semi-permeable membrane by dissolved molecules is not true. Thus, for instance, it was found that membranes heretofore considered impermeable were really very permeable to certain substances. Second, that osmosis and dialysis are really chemical processes depending upon the differences in chemical affinities different substances have for each other. Third, that by knowing the exact chemical formula of the membrane, the solvent and the solute, one can absolutely predict whether or not osmosis is going to take place and in which direction it is going to take place even before the experiment is started. It was further proven that the theory, that only crystalline substances are dialysable, was entirely at fault, because colloids will pass through certain membranes through which crystalloids will not pass.

*Read before the Southern Surgical and Gynecological Association at White Sulphur Springs, West Virginia, December 11, 1916.

If chloroform is placed in the bottom of a beaker, over this a layer of water is carefully placed and over this a layer of ether, as in Fig. 1, and the beaker is set aside, in a relatively short time there will be only



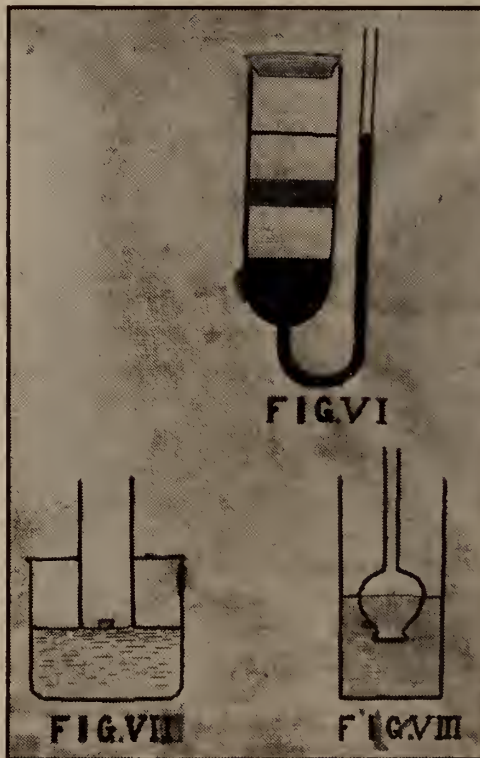
two layers in the beaker—a lower layer consisting of chloroform and ether saturated with water and an upper layer of water saturated with ether and chloroform. That the change is not due to gravity is evident because water is considerably heavier than ether, and chloroform heavier than either. Instead, it occurs because water has a slight affinity for ether and chloroform has a greater affinity for ether than has water. In other words, the water takes up a little ether and as it takes up the ether, the chloroform in turn robs the water of the ether until practically all of the ether has been taken up by the chloroform. If in place of ether, olive oil is substituted as in Fig. 3, no change will occur if the beaker is allowed to stand quiet, because the water has no affinity for the olive oil. If, however, olive oil is dissolved in ether, as in Fig. 4, the water will abstract the ether from the olive oil and in turn the chloroform will rob the water of the ether, and there will in a short time be a rearrangement of the liquids, an upper layer of olive oil, a middle layer of water and a lower layer of chloroform and ether, as in Fig. 5. This occurs for the same reason as the changes in Fig. 1 and 2.

If an apparatus is arranged, as in Fig. 6, placing mercury in the bottom, then chloroform saturated with water, then a tight-fitting cork and then a layer of ether, no change will take place even if allowed to stand indefinitely. However, if the cork is first thoroughly boiled so as to drive out all the air and replace this air with water, a marked change immedi-

ately takes place. The ether gradually disappears and the mercury is gradually driven up in the tube until the pressure becomes so great that either the cork is displaced or the tube breaks from the increased pressure from within. The affinity of the chloroform for the ether is so great that it will rob the water in the cork of the ether with such avidity as to create pronounced osmotic pressure.

If a simple osmometer is made with a thistle tube with a flare of about 45° at the mouth, the mouth carefully covered with dental rubber, such as used by dentists in making their rubber dam, water put on the inside of the thistle tube and the osmometer immersed in 95.5 per cent. alcohol, as in Fig. 8, the liquid will soon rise in the osmometer showing that the alcohol is passing through the rubber dam into the water.

I think most of us have had the impression that rubber is an impermeable membrane, but as a matter of fact it is permeable to many substances. Osmosis takes place here because the rubber has a slight affinity for the alcohol, takes some of it up, but as the water has a stronger affinity for the alcohol than rubber has, the water will rob the rubber of its alcohol and draw the alcohol through the rubber into the



water. Osmosis through rubber will always take place if the rubber has an affinity for the solute, providing the solvent has a stronger affinity for the solute than has the rubber.

If a solid block of camphor weighing 2 gms. is placed in the osmometer, as in Fig. 7, the outer liquid is CS_2 and the membrane is rubber, in four minutes

it is clearly apparent that the block of camphor is being attacked. After thirteen minutes a thin layer of liquid is visible on the upper side of the rubber and after forty-five minutes all solid camphor will have disappeared, having passed through the rubber into the CS₂.

If the inner liquid, in Fig. 8, is a 0.05 normal solution of Ag NO₃ in pyridine, the outer pyridine and the septum rubber, no change whatever takes place even if the experiment be continued for a period of six days. However, if the inner liquid is a normal solution of Ag NO₃ in pyridine, the outer liquid pyridine and the membrane rubber, the liquid in the osmometer rises to a height of 15.6 cm. by the end of the third day.

I quote the above two experiments because they have an important bearing on clinical observations and because they are two of a considerable number of similar experiments which demonstrate that solutions must be of a certain minimum concentration in order that osmosis take place. In other words, even in laboratory experiments, if solutions are too dilute osmosis will not occur. Physical conditions, particularly stirring of the solvent, increase greatly the rapidity of osmosis as well as the osmotic pressure. The above experiments are a few selected from several hundred made by Prof. Kahlenberg and his assistants, because I believe they illustrate best the nature of osmosis and because they explain what takes place when solutions are applied to external surfaces of the body.

Clinically the laboratory experiments in osmosis can be very closely duplicated if we apply some substance in solution to the skin. The skin then becomes the osmotic membrane, the circulating blood and lymph beneath, the solvent, and the wet dressing or solution applied to the skin, the solute; the osmotic phenomenon will then occur, provided the skin has affinity for the solute and the lymph and blood have greater affinity for the solute than has the skin.

The two chemical substances used in our clinical experiments were boric acid and lithium carbonate. If one of these substances is dissolved in water in proper strength and an extremity is immersed in this solution or if the solution is applied as a wet dressing, it is rapidly absorbed. This is proven by the fact that within an hour the patient will void it in the urine. As lithium carbonate does not seem to have any marked therapeutic action if applied in this way, I will confine my remarks to our experiments

with boric acid solutions. The experiments were conducted in the following manner:

The patient was directed to void his urine, then a saturated solution of boric acid was applied as a wet dressing. At the end of an hour and after this at intervals of two hours continuing during the period of illness and for two days after the wet dressings were removed, the urine was collected in absolutely clean sterile bottles, one bottle being used for each time the urine was voided. These samples were sent to Prof. Kahlenberg for qualitative and quantitative analysis. In every instance where a saturate solution of boric acid was applied appreciable quantities of boric acid appeared in the first specimen of urine voided and continued to appear in every specimen so long as the wet dressing was continued and for a varying number of hours after the dressing was removed. A considerable number of patients were followed up in this way. The quantity of boric acid excreted and found in the first specimens voided varied from 0.001 to 0.01 per cent. With one patient the highest amount voided at any time was 0.05 per cent., while with another the highest amount of boric acid found was 0.2 per cent. The variations in all the cases were between these two figures.

When we were thoroughly convinced that a saturated solution of boric acid was absorbed in considerable quantities when applied as a wet dressing, we made tests with a 2 per cent. aqueous solution of boric acid as wet dressing. In one of these cases not a trace of boric acid was found in the urine until the dressing had been in place forty-six hours and then only 0.001 per cent. In a number of other cases treated with a 2 per cent. solution of boric acid, no boric acid was found in the urine at any time.

These chemical investigations demonstrate why it is necessary to employ boric acid in saturated solutions, and find their counterpart in the experiments with silver nitrate in pyridine where the septum was rubber. Here you remember that in a 0.05 per cent. normal solution, the silver nitrate in pyridine did not pass through the rubber for a period of six days, while in a normal solution of silver nitrate in the same experiment, the osmotic pressure rose to 15.6 cm. by the end of the third day. It is evident that solutions must be of a certain minimum concen-

tration before absorption or osmosis take place and that the rapidity of absorption or osmosis bears a direct relation to the concentration of the solution. The affinity between the water and small amount of boric acid is evidently so great that the lymph and blood on the other side of the septum, the skin, is not strong enough to rob the water of its boric acid in the two per cent. solution, while the four per cent. solution evidently gives up its boric acid much more readily.

That boric acid when applied as a wet dressing in saturated aqueous solution is absorbed by the tissue, I believe is incontrovertibly established by these experiments, but the skeptical might say, what of it? The fact that a certain substance is absorbed is not proof that it is of therapeutic value. However, I believe the next group of experiments, as well as our clinical experience, will prove that boric acid, if absorbed, is of value in septic infections. Boric acid does not seem to have any power of inhibiting the growth of pathogenic bacteria, but I am fully convinced that it has great power in reducing their virulence. I have repeatedly withdrawn streptococcus pus from a patient suffering from a septic infection of one of his extremities, and injected varying amounts of this pus into the peritoneal cavity of guinea pigs and mice. If this pus were withdrawn and injected before the patient had been treated with boric acid as a wet dressing, one to five minims of this pus invariably killed the test animal, while if the patient had been treated with the wet dressing for a number of days, I have repeatedly injected sixty minims of this same streptococcus pus without causing the death of the animal or even making the animal sick.

When we consider that under ordinary circumstances passing streptococci and other pathogenic bacteria through the human body practically always greatly increases their virulence the actual reduction of virulence in these cases proves, I believe, that boric acid, as a wet dressing, is a very potent remedy in the treatment of septic infection. In fact I have come to the point where I look upon this dressing as almost specific in streptococcus, Staphylococcus albus and citreus infections of the skin and cellular tissue as well as in pemphigus.

In this connection permit me to state that my clinical experience leads me to believe that boric

acid wet dressings are not nearly as effective in Staphylococcus aureus, and entirely without value in gonorrhea, specific inguinal adenitis, chancre, chancroid, infections caused by the Flaschen bacillus of Unna, in pyocyaneus infections and in saprophytic infections; and even harmful in malignant edema, in tuberculosis, and in impetigo contagiosa. In order not to be disappointed in our use of boric acid wet dressings, it is important that we make a diagnosis as to the nature of the infection. As a rule, this can be done easily, at least one can practically always say whether a case is one of malignant edema, of tuberculosis, or impetigo contagiosa, and it is only in these three infections that boric acid is contra-indicated.

In order that the maximum amount of good be derived from this dressing, in cases of cellulitis and other forms of septic infections, a number of other points in its use should be observed. Probably the most important therapeutic agent and the one most often neglected is "Rest." Rest in bed with the extremity elevated and with the muscles surrounding the joint at equilibrium should always be insisted upon.

The eliminative function of the bowels, lungs, skin and particularly the kidneys should be most carefully looked after.

Septic infections of all kinds are attended with more or less pain, which in some cases may not only be excruciating, but very persistent. We must not forget that long continued severe pain greatly interferes with a patient's ability to develop immunity. Those of us who were not fully impressed with the above fact have had ample opportunity to become impressed with it by careful study of the opsonic index in a large number of cases. In every case thus studied it was found that the opsonic index absolutely refused to rise until the pain had been relieved in some other way than by the use of opiates. While boric acid dressings will relieve pain to a considerable extent, there are a number of other remedies and devices which can be employed to bring about cessation of pain more rapidly. Ninety-five per cent. alcohol added to the saturated solution of boric acid in quantities of from fifteen to thirty per cent., will often be found of great value. It is a good antiseptic, and in addition, it has a strong dehydrating effect and will help to make the limb warm and comfortable, reliev-

ing the extremity of the cold, clammy feeling, of which the patient sometimes complains when aqueous boric acid solution is used alone.

Placing the patient in bed with the affected limb elevated also relieves pain. In addition the rest will keep the muscles quiet, preventing the septic material from being pumped into the circulation and reduces to the minimum the danger from acute endocarditis and pyemia.

When the infection is superficial the best analgesic is to paint the reddened and inflamed area with ninety-five per cent. carbolic acid until the skin turns white, and then washing off the carbolic with alcohol. This will not only relieve the pain, but will destroy innumerable bacteria and will accomplish both without danger to the kidneys.

The question of drainage has been a perplexing one to many men and has been the subject of much controversy. In the great majority of cases, the veins and lymphatics can be drained by simply elevating the affected extremity, and this can be done so effectually that incision rarely becomes necessary. This drainage by elevation is assisted by the dehydrating power of the alcohol in the solution above advised.

There is an old rule in surgery, so old that I have not been able to trace its origin, which says, "Ubi pus, ibi evacuo,"—or in English, "Where there is pus, there evacuate." This rule, with certain modifications, is still a good one, but in recent times it has too often been exceeded. Many surgeons seem to have construed it to read: "Before there is pus, evacuate," which, of course, is an absurdity. To many of you the above statement may seem like an exaggeration, but in reality it is not. Sometimes these too early incisions are due to excessive zeal, and again they are prompted by fear of criticism on the part of one's fellow practitioners. I have no doubt but that every one of you can recall one or more cases when such early incision was actually practiced. One should always secure drainage just as soon as an infection occurs, but until macroscopic pus develops, this can be done much more safely and effectually without incision. If pus has formed before the patient applies for treatment, or as will sometimes, though rarely happen, in spite of treatment, and a localized abscess develops, as manifested by fluctuation, the proper thing to do is to secure free drainage by incision, and the old

rule finds its proper application. There are, however, several points about the incision that are of utmost importance. First of all, before the part is incised, it is always well, whenever possible, to apply an Esmarch constrictor proximally to the proper point of the incision, and after the incision is made, pack the wound with a strip of gauze which has been soaked in tincture of iodine. The Esmarch will block the veins and lymphatics until the tincture of iodine can secure the closure of the cut ends by favoring the formation of thrombi, when the Esmarch can safely be removed. When these precautions are not observed, it often happens that the incision and necessary manipulation forces virulent septic material into the general system, as manifested by severe chills, marked pyrexia, and delirium a few hours after the operation. The part should be manipulated as little as possible in order to avoid these undesirable consequences, and especially is this last precaution to be observed if the incision is in some part of the body where an Esmarch cannot be applied. Another important precaution in reference to the incision is, that the incision should always be within the line of demarcation or distal to it. An ordinary boil is always surrounded on all sides, except the skin covering it, by a wall of leucocytes. It can practically always be incised without going through this line of defense. An infected finger is eliminated from the rest of the body by an infiltration of the tissues with innumerable leucocytes standing guard and ready to destroy any bacteria that come their way. The ridge can always be seen or felt, and it is just as easy to make the incision distal to this wall as to break down this barrier. I could cite many cases where this little rule was not observed, and almost always the convalescence was unnecessarily prolonged. One case in particular do I remember where extensive incisions were made without an Esmarch, and no attention was paid to the line of demarcation. The patient developed a chill within a few hours, the temperature rose to 106° F. and he died within two days from septicemia. Even if the patient is not thus overwhelmed with the septic poison, the wrongly executed incisions always infect new areas which take much time and vitality to heal, and sometimes the convalescence is thus unnecessarily prolonged for weeks and even months.

An additional and very important reason why septic infections should not be incised until there is positive evidence of pus, is that it takes some time for the patient to develop immunity and unless a certain degree of immunity is established at the time of incision, it is almost sure to spread the infection. This fact is one of the most important ones to be kept in mind in the treatment of infections, no matter where they may be located in the body, and hence this precaution cannot be too strongly emphasized.

If space permitted I could give the histories of a number of cases illustrating this point. Those cases in whom the incision was made too early always recover much more slowly than did those cases who had developed this immunity before the incisions were made.

Incision when found necessary should be made under strictly aseptic precautions, in order to avoid mixed infection. At the onset the infection is invariably caused by one variety of pathogenic bacteria against which the patient has already developed a certain degree of immunity at the time when the incision should be made. If now a new infection is superimposed upon the old one an additional, quite unnecessary burden is placed upon the already devitalized system, which will certainly greatly retard recovery and may even jeopardize the life of the patient.

At the time of incision it is also advisable to make a culture of the uncontaminated pus in order that a vaccine can be prepared in case for any reason healing is retarded. These autogenous vaccines are found to be much more effective than are stock vaccines.

For a long time it was the practice of many surgeons to excise all accessible, enlarged lymph glands. I consider that this is a grave error. When a lymph gland has broken down, is suppurating, drainage is, of course, necessary, but so long as it is simply inflamed, it shows that it is doing its duty, and it would be just as wise to withdraw an active fighting garrison from the last fort, as it would be to excise an active lymph gland, even though it be inflamed. So long as it is not suppurating, it is waging a winning battle and demands our support. It is sometimes the only barrier left, and its removal may lead to general sepsis.

By following the method of treatment above outlined, I have usually been able to avoid incising septic infections, and in cases which came to

me before incision had been practiced, I have never lost a patient, never found it necessary to amputate an extremity, not even a finger or toe, and have not one single claw hand to my discredit.

I believe our physio-chemical experiments, our bio-chemical studies, our bacteriological investigation and our clinical experience are corroborative and justify the following conclusions, viz.: that osmosis is a purely chemical process; that boric acid when applied to the surface of the body in a saturated aqueous solution, is absorbed in appreciable quantities by a process of osmosis similar to the process studied in the chemical laboratory; that, when used in cases of septic infection, it is most potent in reducing the virulence of certain pathogenic bacteria, but, that in order to be effective, it must be applied in saturated solutions; and finally, that when applied as above directed in the early stages of septic infection, most cases will make complete recovery without incisions, without the loss of any member and without permanent impairment of function.

2155 Cleveland Ave.

REMOVAL OF THE GALLBLADDER.*

E. STARR JUDD, M. D.,
ROCHESTER, MINNESOTA.

In a former paper on cholecystitis and the changes produced by the removal of the gallbladder, I mentioned some experimental work being done for me by Mann. I now wish to review these experiments, which have been completed, and, if possible, draw some conclusions from the results obtained.

ANATOMY.

The excretory apparatus of the liver is made up of: 1, the bile canaliculi or intrahepatic ducts in and between the lobules of the liver; 2, the hepatic ducts formed by the union of the canaliculi; 3, the gallbladder, a diverticulum or reservoir; 4, the cystic duct, a communicating tube, and, 5, the united hepatic and cystic ducts which form the common bile duct. The hepatic duct is formed by the union of the right and left bile ducts descending from the liver. These ducts unite at an obtuse angle at the right end of the transverse fissure of the liver—usually close to the liver.

*Presented before the Tri-State District Medical Society, Freeport, Ill., Sept. 26, 1916.

The normal gallbladder is pear-shaped and about 3 in. to 4 in. long. The broad, rounded end of the fundus projects downward, forward, and to the right. Normally, it holds from one to one and a half ounces. The neck of the gallbladder extends to the transverse fissure and continues in a spiral curve into the cystic duct. This duct is from 1 in. to 3 in. long and about 2.3 mm. in diameter. It joins the hepatic duct at an acute angle. On the inner surface the curving of the cystic duct corresponds to the screw-like valve running through the entire duct.

The common duct is about 3 in. long and $\frac{1}{4}$ in. (6 mm. to 7 mm.) in diameter. It passes downward behind the first part of the duodenum and behind and to the inner side of the second part, lying in a furrow between the duodenum and the head of the pancreas. For a short distance it is in contact with the right side of the pancreatic duct. These two ducts perforate the duodenal wall and run obliquely for $\frac{3}{4}$ in. between its coats, finally opening into a small pouch called the diverticulum of Vater. This diverticulum opens on a single papilla (papilla of Vater) of the mucous membrane of the duodenum. It is situated 3 in. to 4 in. below the pylorus on the posterior internal wall of the duodenum near the juncture of the middle and lower third.

All vertebrates do not have a gallbladder, although it is present in reptiles and nearly all fishes. The ass, horse, elephant, deer and rhinoceros do not have gallbladders, and in these animals a large common duct runs directly from the liver to the duodenum. In man and in all the animals that we have dissected, as far as we have been able to determine, the common bile duct and the main pancreatic duct (duct of Wirsung) empty into the same diverticulum, and this always enters the duodenum by a single papilla. At the papilla is a very small sphincter muscle which has been described by Oddi¹, Hendrickson² and Archibald.³ It is so small that it is often hard to demonstrate even microscopically. By this muscle, bile is held back in the excretory apparatus, and especially in the gallbladder, until it is needed in the duodenum. Bile normally enters the duodenum by spurts; it does not flow continuously.

From Archibald's³ and our own experiments we know that the normal pressure in the common duct is from 100 mm. to 200 mm. water. This

pressure can be greatly increased (600 mm. water) by touching the mucous membrane of the duodenum with dilute acid and producing a spasm of the sphincter. Archibald has demonstrated that the entrance of the bile into the duodenum is under the control of a sphincter acting at the ampulla.

FUNCTION.

The exact function of the gallbladder has never been definitely established. The organ is most often spoken of as a reservoir for bile. However, this theory is questioned by many investigators, as such a comparatively small diverticulum holding at most only a few ounces seems inadequate when it is considered that the normal output of bile in 24 hours is from 30 to 50 ounces. C. H. Mayo⁴ and Deaver⁵ are of the opinion that the gallbladder acts as a tension bulb, and that during fluctuations of pressure in the ducts, due especially to pathologic changes, the gallbladder spares the parenchyma of the liver from back pressure. Physiologists say that the bile secreted in the intervals between digestion collects in the gallbladder, where it is condensed through the absorption of water. Flexner⁶ has shown that if the mucus from the gallbladder is mixed with the bile, the latter is much less irritating to the pancreas.

EXPERIMENTAL DATA AS TO THE EFFECT OF REMOVING THE GALLBLADDER.

Somewhat similar experiments in the removal of the gallbladder have been carried out by Oddi,¹ Rost,² and Archibald.³ Several surgeons have suggested that the removal of the gallbladder is followed by so-called compensatory dilatation of the common duct. Our investigation was made on dogs, cats and goats. The latter were employed because of the relationship of the pancreatic duct to the common duct. The former enters the latter at a rather acute angle, quite a distance from the duodenum. In the dog and cat, one of the pancreatic ducts opens into the common duct near the ampulla. In all our operative procedures the animals were anesthetized and the usual surgical technic employed. At different times after operation, except when the animals succumbed to intercurrent disease, they were etherized and killed. The points of interest were carefully examined grossly, and in many instances also microscopically.

After the removal of the gallbladder all the

extra-hepatic ducts dilate. This can be demonstrated in dogs and cats, and to a less extent in goats. The dilatation varies from a slight degree to twice or three times the normal diameter of the ducts. However, no dilatation was observed in the ducts within the liver substance; and the intramural portion of the common bile duct is dilated to a less extent than the rest of the duct. The greatest dilatation in the biliary tract occurs at the juncture of the hepatic ducts coming from the upper lobes of the liver. The cystic duct was found to be dilated in a few instances. That this was not noted more often we attribute to the fact that usually in removing the gallbladder the cystic duct was ligated very close to its juncture with the hepatic duct.* The time necessary for dilatation was variable. In general, dilatation of the biliary tract occurred in a dog or cat within 60 days after the removal of the gallbladder. No changes were ever observed in the liver or the pancreas, and even in goats, the pancreatic ducts always appeared normal. The following experiment is typical:

Experiment 469, Oct. 19, 1915. Male cur, weighing 10.2 k., was etherized and its gallbladder removed. The diameter of the common duct at the time of operation was 6 mm. The animal was killed with ether Feb. 8, 1916. The operative field was in excellent condition. The common bile duct was dilated, having a diameter of 1 cm.; after entering the wall of the duodenum its diameter was only 6 mm. The cystic duct had been completely ligated at the time of operation. All of the hepatic ducts outside the liver were dilated. The pancreatic duct seemed to be of normal size. The pancreas and liver were normal, grossly and microscopically.

It is desirable to know the exact mechanism by means of which this dilatation was produced. As increase in the size of the duct took place throughout its entire course, it is evident that the cause of the temporary obstruction and resulting dilatation must be located in its distal end. The most probable cause of the obstruction is the sphincter Oddi. This sphincter was first accurately described by Oddi and later investigated anatomically by Hendrickson, and physiologically by Archibald.

The effect of the sphincter in producing dilatation of the biliary tract after cholecystectomy was investigated by three methods: 1, a comparison of the pressure the sphincter would withstand in normal and control animals; 2, by surgi-

cally dissecting the duct free from muscle fibers in its passage through the duodenal wall at the time of removing the gallbladder; and, 3, by section of the mucosal opening and a portion of the sphincter through a duodenal incision. The residual pressure in the common duct, as measured by a water manometer, which is practically a measure of the pressure the sphincter of Oddi will withstand, is quite variable in normal anesthetized dogs and cats. Deep etherization and long periods of anesthesia, together with the exposure of trauma of handling, seem to decrease the tone of the sphincter and likewise the residual pressure. However, it is safe to say that in the normal animal under light anesthesia of short duration, the residual pressure is always greater than 100 mm. water, and usually greater than 150 mm. water. After removal of the gallbladder, the residual pressure is always very low; in some instances it was zero and rarely was it greater than 40 mm. water. The following experiment is representative:

Experiment 124, March 6, 1916. Female black cat, weighing 2.3 k., was etherized and its gallbladder removed. The animal remained in good health after operation. Aug. 2, 1916, it was again etherized and a water manometer was connected with the common duct. A normal cat of approximately the same size (weighing 2.2 k.) was also etherized and the common bile duct attached to the same manometer through a two-way stop cock. The sphincter of the cat operated on withstood a pressure varying between 30 mm. and 60 mm. water, while that of the control animal withstood a pressure of 160 to 170 mm. water. The common bile duct of the cat operated on was dilated, having a diameter of 3 mm. The diameter of the common bile duct of the control cat was 1.5 mm. The liver and pancreas of both animals were normal.

In the animals in which the gallbladder was removed and the muscle fibers were dissected free from the intramural portion, dilatation of the duct did not occur except when there was mechanical obstruction due to adhesions. The residual pressure in the unobstructed cases was always very low. The following experiment illustrates this point:

Experiment 176, March 24, 1916. Male dog, a mastiff, weighing 27.9 k. The gallbladder was removed and the common duct dissected free from muscle fibers in its intramural portion. The operation was accomplished with difficulty—in one place the bile duct was accidentally opened but was immediately closed with one silk suture. The animal was quite sick after operation, refused food and lost weight. July 18, 1916, the dog was etherized and the residual pressure

*In dogs and cats the true common duct is formed below the entrance of the cystic duct.

estimated. The pressure varied between 20 mm. and 30 mm. water. There were many adhesions at the site of the operation but the duct was not obstructed. The ligature on the cystic duct had cut through into the lumen and many small pin-point concretions were attached to it. There appeared to be a slight dilatation of the duct where the upper hepatic ducts joined. The common duct measured 7 mm. in diameter and evidently was not dilated. The liver and pancreas were grossly normal.

Section of the mucosal opening and a portion of the sphincter, through a duodenal incision, after removal of the gallbladder, has given variable results in regard to the effect on the duct, and positive conclusions cannot be drawn. However, in one perfect experiment, dilatation occurred as in the animals in which the gallbladder was removed.

Experiment 249, April 27, 1916. Male maltese cat, weighing 3.1 k., was etherized and its gallbladder removed. The duodenal mucosa was cut at the opening of the common bile duct, through a duodenal incision. The animal remained in good health except for the mange. July 7, 1916, it was etherized and the residual pressure in the common bile duct was estimated. The pressure here varied between 40 mm. and 50 mm. water. The common bile duct was dilated, measuring 4.5 mm. in diameter. The hepatic ducts were also dilated. Pancreas and liver were grossly normal. The duodenal opening of the common bile duct was very patulous, measuring 4.5 mm. in diameter. Both incisions were well healed.

That section of the mucosal opening of the common bile duct is not without danger is shown by experiment 104:

Experiment 104, Feb. 21, 1916. Female dog, spaniel, weighing 13.2 k., was etherized, its gallbladder removed and the sphincter of Oddi sectioned through a duodenal incision. The animal remained in good health except for slight mange. Aug. 4, 1916, it was again etherized and the common duct connected to a water manometer. The residual pressure was 100 mm. to 120 mm. water. There were many firm adhesions at the site of the operation, but none of them in any way obstructed the bile duct. The duodenal incision was well healed. The pancreas and its ducts were normal. The common bile duct was certainly not dilated, measuring 2.5 mm. in diameter. The duodenal opening of the duct was very patulous, measuring 5 mm. in diameter. The incision had healed perfectly. The liver appeared grossly normal. On opening the bile duct it was noted that the remaining portion of the cystic duct was slightly dilated and contained an ascaris. One or more ascarides were found in the hepatic ducts. In the duct going to the upper right lobe were three worms. There were none in the left lobe. In some cases the ascarides were deep in the liver substance.

The dilatation of the common bile duct which

takes place after removal of the gallbladder does not prevent the guarding of the duodenal opening by the fold of mucous membrane, so that material from the duodenum does not flow back into the duct. In specimens in which the duct was greatly dilated and the residual pressure very low, it was impossible to produce a passage of fluid from the duodenum into the duct, even though the intraduct pressure was increased enormously.

The probable explanation of the preceding facts is as follows:

Normally the liver secretes bile constantly, although the rate varies. However, due to the action of the sphincter Oddi, bile is not passed into the intestine at the same rate it is secreted. The excess accumulates in the gallbladder. After cholecystectomy the sphincter attempts to maintain this difference between the rate of secretion and the rate of discharge, with the result that though the intra-duct pressure was increased the bile accumulates in the biliary tract. As the sphincter is able to withstand a pressure varying from 100 to 645 mm. water and the secretory pressure of the liver varies from 230 to 360 mm. water, the intraduct pressure can be considerably increased. This increased intraduct pressure produces dilatation of all extrahepatic ducts. The intrahepatic ducts are supported by the liver tissue and therefore do not dilate. The process producing dilatation of the ducts is maintained until the biliary tract will contain as much bile as the gallbladder, or, what seems to occur most often, the sphincter itself becomes dilated and is not able to withstand its normal pressure.

SUMMARY.

After removal of the gallbladder all the ducts outside the liver dilate. The sphincter at the entrance of the common bile duct into the duodenum is the main factor in producing this dilatation. After cholecystectomy this sphincter can withstand only a small percentage of the pressure it normally maintains. When all of the muscle fibers are dissected free from the intramural portion of the duct, the biliary tract does not dilate after the removal of the gallbladder.

Clinical Review of Cases in Which the Gallbladder was Removed.

Recently, I have been able to get reports from ten patients on whom cholecystectomies had been performed in our clinic more than fifteen years

ago. This series seems to demonstrate that a person can remain in ordinary good health for a number of years without a gallbladder.

The average age of the ten patients at the time of operation was 49.2 years; the oldest was 67 years and the youngest 37 years. The average duration of illness before operation was 6.5 years. The longest history was 12 years, and the shortest, 7 months. Nine of the ten patients are living; one had good health for two years, and died following an accident.

Seven patients gave a history of typical gallstone attacks, usually requiring a sedative for relief; in two cases jaundice was present in some of the more severe attacks. Of these seven patients who gave a typical history of gallbladder attacks, six were completely relieved by cholecystectomy, have had no subsequent attacks, and say that they digest their food well. Four of them state that they can eat anything. Two are troubled a good deal with constipation and at times have considerable gas, bloating, and sour stomach, but this condition is relieved by taking cathartics and they have no trouble when their bowels are regular. The remaining patient gave a 12-year history of typical gallbladder attacks and marked loss of weight (80 lbs.). Tubercle bacilli were found in the sputum. At operation a ruptured gallbladder with an abscess cavity and fistula into the transverse colon, and a stone in the cystic duct were found. After the operation this patient gained 80 lbs. in three years, and has maintained this weight to the present time with good general health. As a rule digestion is good although there is some gas and abdominal pain if he is careless in the selection of his food. Six of the seven, therefore, have good health at the present time.

The remaining three patients gave a history of gastric trouble at the time of operation; the chief complaint of one of them was "stomach trouble" by spells, epigastric pain after eating, vomiting, etc., with periods of remission. The other two patients in this group gave a history extending over a long period of time of more or less epigastric distress after meals, gas, continuous gastric trouble, sour eructations, vomiting, constipation, with no periods of remission. The patient whose attacks came on by spells, at operation was found to have a ruptured gallbladder with a fistula into the duodenum. Complete re-

lief, good general health and digestion are reported since the cholecystectomy and the repair of the fistula. Of the two patients who had more or less continuous gastric trouble, one had a stone in the common duct, and the other a stone in the cystic duct and a large quantity of putty-like material in the gallbladder. These two patients claim very little relief from the operation; the former complains of gas and vomiting, constipation, rheumatism, neuralgia, and obesity; the latter says she has much gas and bloating which is more or less continuous as before the operation. The former is 58 years of age, weighs 240 lbs., and is able to do her own work; the latter, who is 74 years of age, also does most of her own housework.

A cholecystectomy was performed in each of these ten cases. Gallstones were found in the gallbladder in every instance. In three cases a stone obstructed the cystic duct; in two there were stones in the common duct. The gallbladder had ruptured in three instances: in one case into the duodenum; in the other two into the transverse mesocolon with an abscess cavity and fistula into the transverse colon. Therefore, it is to be noted that in some cases procedures other than cholecystectomy, such as repair of fistulas and plastic operations on the ducts, were necessary.

In conclusion it may be stated that after the removal of the gallbladder certain changes take place which are practically compensatory. The common duct always dilates; the pressure in it is greatly reduced so that there is probably no back pressure in the pancreatic duct; and the patency of the Oddi sphincter is almost if not entirely overcome. It is evident that in most instances, at least, a person can live as comfortably without a gallbladder as with one.

REFERENCES

1. Oddi, R.: Di una speciale disposizione di sfinteri allo sbocco del coledoco. *Monitore zoologico italiano*, 1894, v. Quoted by Luciani, L.: *Human Physiology*, 1913, ii, 214-17.
2. Hendrickson, W. F.: A study of the musculature of the entire extra-hepatic biliary system, including that of the duodenal portion of the common bile-duct and of the sphincter. *Rep. Johns Hopkins Hosp.*, 1898, ix, 221-232.
3. Archibald, E.: A new factor in the causation of pancreatitis. *Tr. Internat. Cong. Med.*, 1913. Lond. 1914, Sect. vii, Surg., pt. 2, 21-27.
4. Mayo, C. H.: Cholecystostomy versus cholecystectomy. *Trans. South. Surg. and Gynec. Assoc.*, 1915, xxviii, 276-84.
5. Deaver, J. B., and Ashburst, A. P. C.: *Surgery of the upper abdomen*. Phila., Blakiston, 1913, ii, 104-5.
6. Flexner, S.: The constituent of the bile causing pancreatitis and the effect of colloids upon its action. *Jour. Exper. Med.*, 1906, xiii, 167-77.
7. Rost, F.: Die funktionelle Bedeutung der Gallenblase. Experimentelle und anatomische Untersuchung nach Cholecystektomie. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1913, xxvi, 710-770.

ON THE ETIOLOGIC RELATIONSHIP EXISTING BETWEEN GASTRIC ULCER AND GASTRIC CANCER.*

FRANK SMITHIES, M. D.,

Gastro-Enterologist to Augustana Hospital, Chicago; former Gastro-Enterologist to the Mayo Clinic and Instructor in Internal Medicine and Demonstrator of Clinical Medicine in the University of Michigan.

CHICAGO.

Nearly three years ago I reported observations upon 556 operatively and pathologically demonstrated instances of gastric cancer. The study was made particularly with the object of determining the evidences pointing to the relationship existing between gastric ulcer and cancer of the stomach. Since the above report, records have been made of 397 additional proved cases of gastric cancer. There is consequently a total of 953 instances of the disease now available for review. As a parallel study, I have tabulated the points of value in 544 operatively demonstrated cases of benign gastric ulcer. In this paper it is intended to indicate what have been emphasized by my study of the combined material.

I. THE NATURE OF GASTRIC ULCER.

(a) *Origin*.—All types of benign gastric ulcer may be produced experimentally by a wide variety of methods. Bolton classifies some of the more familiar causative agents as : 1, *bacteria* (pneumococci by Dieulafoy, staphylococci by Widal and Meslay, Staphylococcus aureus by Letulle, Bacillus pyocyaneus by Charrin and Ruffer, Bacillus dysenterii by Chantemesse and Widal, lactic acid bacillus by Wurtz and Leudet, bacillus of Pfeiffer by Slatineano, meningococcus of Weichselbaum by Gaudy and Griffon, Eberth's bacillus and Bacillus coli by Rodet and Zaidmann, streptococcus by Rosenow); 2, *bacterial toxins* (pyemias by Lebert and by Cohn, diphtheria toxin by Enriguez and Hallion and Rose-nau and Anderson); 3, *cutaneous burns* (Welty, Ponfick, Silbermann, Parascandolo); 4, *poisons of metabolic origin* (Bolton's "gastrotoxin" injected intraperitoneally or subcutaneously); 5, *extrinsic poisons* (mercury salts, arsenious, acid, cantharidine, vegetable alkaloids, pilocarpine and atropine, copper sulphate); 6, *poisons introduced into the stomach* (corrosives and caustics), and, 7, *alterations in the gastric circulation* (vascular blocking, thrombi, emboli, arteriosclerosis, or nervous inhibition, external pressure). The

type of ulcer produced experimentally may vary slightly according to the method employed in causing it. The resultant lesions are, however, essentially similar. There is loss of surface epithelium, necrosis, inflammatory edema, hemorrhage and glandular destruction. In the healing of ulcers, irrespective of the way they may have been produced, the essential feature consists in development of protective connective tissue by hyperplasia, with resultant scar.

(b) *Course*.—In neither experimental animals nor the human can the life history of any gastric ulcer be prognosed. This applies with respect both to the extent of the lesion and the amount of tissue destruction taking place. That most gastric ulcers have a natural tendency to heal is shown by the rapid appearance of scar formation in experimental animals, the discovery of healed ulcers at laparotomy or necropsy, and the clinical "cure" of ulcers by widely varying modes of medical or surgical treatment. The time required for ulcer formation or the healing of such seems to vary widely. There are factors concerned which appear to be largely individual. Certainly, chronicity of an ulcer pathologically does not necessarily coincide with chronicity in the sense of duration in terms of months or years. Huge, excavated calloused ulcers may form in a few weeks, and superficial bleeding erosions or small calloused ulcers may exist for years with no evident extension or marked connective-tissue hyperplasia.

(c) *Malignant Change*.—That some factor other than the persistent presence of an ulcer in a functioning stomach is necessary to result in the transformation of a benign process to a malignant one is apparently indicated by the fact that no experimental method has ever produced in animal or man a cancerous ulcer. Chronic irritation, infection, artificial anemia, starvation, overfeeding or local application of chemicals have all failed to bring about any such process as we see in *ulcus carcinomatousum*, *i. e.*, the power of atypic, unlimited growth with the ability to cause death of the host by malignant intoxication and metastases. Just how such change can be possible in man we are not able to state. Herein lies one of the strong points of argument for those clinicians and pathologists who claim that benign gastric ulcer rarely becomes malignant. No one has

*Read before the Chicago Medical Society, Jan. 3, 1917.

ever seen the actual transition from a benign process to cancer. In a given specimen examined microscopically, one can only say that cancer is or is not present. Atypical hyperplasias may render a diagnosis of early malignancy highly probable by one experienced in the examination of fresh tissue, but it appears impossible to state definitely that an ulcer which shows cancerous change in a few spots of its edge was ever anything else than malignant. Certainly one cannot say absolutely that the part of the mucosa that has necrosed and sloughed was benign. That part may have been wholly cancerous and prevented from wider incursions into the gastric wall by the very atypical hyperplasia, so-called, that remains for our study. What we see may be an indication of a histologic battle, already a partial victory. The subsequent spread of the few malignant rests, which are evident, may follow as a consequence of the exhaustion of the protective mechanism as a sequence of the first attempt at defence. When an ulcer is excised at laparotomy the histologic struggle is interrupted. One cannot satisfactorily prognose what the ultimate outcome would have been had the conflict been allowed to proceed. It is only when one observes gross cancerous ulceration with evidences of perigastric lymph-gland invasion that it is possible to state that the disease will progress to the death of the host.

(d) *Frequency of the Transition of Benign Gastric Ulcer to Cancer.*—There has been much misunderstanding on this point. The publication of reports claiming that the clinical type of dyspepsia which frequently precedes what is commonly recognized as a malignant form of gastric disease, is often not to be differentiated from that of chronic peptic ulcer, has given rise to a widespread impression that *vice versa* a like number of chronic gastric ulcers terminate as cancers. Clinical experience and pathologic facts are far from lending support to such conclusion. While our study of the early history of 953 instances of gastric cancer indicates that more than 65 per cent of the cases had a long dyspeptic course (apparently of benign type), preceding that which we clinically interpret as malignant, it does not establish the fact that a like proportion of benign gastric ulcers eventually terminate as cancer. Granted that the so-called precarcinomatous manifestations of gastric cancer closely

simulate those of benign peptic ulcer, it is not unlikely that the common conception, clinically, of the symptomatology of ulcer and of cancer of the stomach is an imperfect one. As there is histologically a group of ulcers where sections do not permit of accurate differentiation between benignity and malignancy, it is not improbable that there are stages in both gastric ulcer and cancer where clinical segregation is impossible. The general conception of how ulcer and cancer of the stomach make themselves manifest clinically may be too narrow.

Pathologically, the strongest proof that exists of the frequency of the histologic transition of benign ulcer to malignant ulcer is advanced by MacCarty. From a most complete and painstaking study he has demonstrated that of 280 resected, chronic, calloused gastric ulcers, in which there was no clinical or gross surgical hint of malignancy, 63 per cent. showed evidences of atypical or undifferentiated cells in their hyperplastic edges. This is an important grouping of facts and has highly suggestive application clinically, but etiologically, as MacCarty frankly admits, it carries no proof that those ulcers showing atypical cell arrangement and structure were ever benign, histologically. While the length of the period of dyspepsia associated with the demonstration of these ulcers might clinically indicate a previously benign process, it does not prove that such actually existed. Our conception of the time of possible duration of malignancy may require readjustment. On purely empirical grounds, the clinical picture of gastric cancer has become firmly established as one of a perniciously and progressively downward process, with fatal termination within from one to two years. How long malignant alterations can exist in a stomach before clinical evidences present, we do not know—the disease may have been “latent” for years before local or constitutional changes became manifest. More than 1.5 per cent. of our cases of well-advanced gastric cancer gave rise to no symptoms directly pointing to a gastric upset. The common knowledge that gastric ulcers may exist without producing so-called “ulcer dyspepsia” is proved by the not infrequent finding of calloused gastric ulcers at laparotomy for other ailments or at necropsy. It is thus evident that it is impossible to indicate the histologic status of any gastric mucosa, from

clinical manifestations alone, previous to the clinical proof that cancer has developed; foundation for the neoplasm may have long been present either as ulcer or as some yet unknown cellular mal-arrangement or intracellular metabolic fault.

There has been much ancient and recent controversy among clinical observers relative to the frequency with which gastric ulcers terminate as cancers. The problem has yet to receive its final solution. While internists or surgeons with meagre laboratory or operating-room experience claim that a very small proportion of calloused gastric ulcers become cancers, the admission that such ulcers, clinically, do at times act as forerunners of cancer, creates at once a situation with diagnostic and prognostic importance. In 1882 Zenker stated it as his opinion that all gastric cancers arose from previous benign ulcers. Seven years later, Rosenheim supported this observation. In 1902, Futterer, after extensive experimental study, advanced the suggestion that gastric cancer develops with great frequency from pyloric ulcer, but that such transition is less common in ulcers located in other parts of the stomach. Fenwick, from experience mainly clinical, claims that but 3 per cent. of gastric ulcers become cancers, but offers no suggestions as to how it is possible to know which ulcers will remain benign and which will become cancerous. From a recent study, Friedenwald would place the frequency of cancers having originated from previously benign ulcers at 7.3 per cent. Moynihan claims that fully 66 per cent. of his cancer cases had been affected previously with chronic gastric ulcer. Sapeska, after a recent review of 100 cases of gastric cancer, could find but 10 instances where previous calloused ulcer had not apparently existed.

My study of 544 surgically demonstrated cases of gastric ulcer in no way indicates the frequency of cancer formation from such. That this is to be expected is emphasized by the fact that our cases are all classified upon a pathologic basis, *i. e.*, a specimen is either benign ulcer, undetermined ulcer histologically or gastric cancer, with or without the association of ulceration. Presuming that our 544 cases of gastric ulcer form part of a group of ulcer cases which arose at some time previously, it is manifestly impossible to tell what course the original ulcer group has taken—namely, how many have healed spon-

taneously or with the aid of medical care, how many have survived as benign ulcer cases, or on how many have surgical procedures been performed, and how many have terminated as cancers. In our opinion the above facts furnish insurmountable obstacles to the possibility of any, even approximately correct, estimate being made with regard to the frequency with which benign gastric ulcer becomes cancer. Whatever may be individual opinion or clinical experience, this phase of the subject remains, as yet, unsettled.

(e) *Clinical Variations in the Symptom-Complex of Gastric Ulcer.*—That a difference of opinion exists among clinicians with regard to what set of symptoms and signs indicate peptic ulcer is readily noted upon the perusal of the observations of those men who have had experience with any considerable material. Symptom-complexes, based solely upon individual interpretation of a group of complaints, signs or tests, cannot expect unqualified acceptance. However, when certain clinical pictures of disease are found in association with the pathologic proof that such disease exists, symptom-complexes can be reasonably formulated, and *only* when measured by this rule are such above criticism. The close simulation of the symptomatology of uncomplicated gastric ulcer by disease of other abdominal organs (gall-bladder, appendix, kidney, spinal cord, etc.), would appear to suggest that the clinical manifestations often associated with such an ulcer, are the evidences of an abdominal or a constitutional disarrangement, in the course of which gastric ulceration is an incident or an end-result. Certain support to this conception of the disease is furnished by the experimental production of gastric ulcers by many and widely differing methods and agents. It is within the experience of all who have had a liberal training, that not infrequently laparotomy or necropsy, at the most competent hands, fails to demonstrate ulceration in patients presenting so-called characteristic clinical manifestations of the ailment. Conversely, it is equally surprising to discover well-advanced gastric ulcer that has produced no symptoms referable to the stomach, at laparotomy for other diseases or necropsy following *exitus* consequent upon accident or extra-abdominal affection. From the foregoing, it would appear likely that the symptomatology which is commonly associated with

gastric ulcer, clinically, is the composite manifestation of a group of derangements among which we may include ulcer of the stomach. The above would appear to impose another limitation to the accuracy with which it is possible to determine the relationship between gastric ulcer and gastric cancer. It is not beyond probability that masses of evidence which have been adduced from purely clinical symptomatology determining the diagnosis are not germane to the subject, inasmuch as in many instances peptic ulcer did not actually exist.

(f) *Malignant Change in Duodenal Ulcer.*—In a consecutive series, our 544 operatively demonstrated instances of gastric ulcer were found to exist in 1,724 cases of peptic ulcer. That is, there were 1,181 cases of duodenal ulcer. It is thus seen that the ratio existing between the frequency of gastric ulcer and duodenal ulcer is as 1:2.45. While duodenal ulcer is much more frequent than is gastric ulcer, cancer of the duodenum is very uncommon. From a careful perusal of records, I noted it 9 times in 1,181 cases of duodenal ulcer. It has been advanced that if gastric ulcer frequently undergoes malignant transition, then one should expect a high ratio of malignant duodenal ulcers. When cancer of the duodenum is found, it is commonly located at or near the papilla of Vater. In such situations the viscus is liable to injury from gallstones, altered secretions of the liver and the pancreas, and infective processes from the galltract. Moreover, at the papilla of Vater, there may be stagnation of duodenal contents or slowing of the rate of discharge of the digestive juices from the liver and the pancreas. It should also be emphasized that ordinarily there is little opportunity of traumata to the duodenal mucosa as a consequence of retarded food progression. Food remains for a very brief time in the duodenum, provided stenoses do not exist. The opposite condition exists in the stomach, in which event there is abundant time for bacterial, chemical or mechanical injury to a gastric lining already robbed of some of its resistance. That the duodenum appears to have an inherent protective mechanism against malignancy appears to be demonstrated by the observation that only rarely does cancer of the stomach extensively involve the duodenum by direct extension. The different character of the tissue of this part of the

gut seems to be evidenced by the fact that not infrequently duodenal ulcers, which have extended to the pylorus, assume malignant change in the stomach edge and nowhere else.

(g) *Gastro-Enterostomy as a Protection Against Malignant Transition of Gastric Ulcer.*—Given a gastric ulcer proved to exist by laparotomy, if such ulcer be not excised, it appears to have been shown by competent observers that after gastro-enterostomy malignancy rarely supervenes. In our series, there were eleven instances where apparently benign gastric ulcer appeared later with cancer of the stomach after anterior or posterior gastro-enterostomy had been performed. Of course, inasmuch as none of these ulcers had been microscopically examined before gastro-enterostomy, it is not possible to state that such were not malignant at the time that the operation was performed. It should be recalled that modern surgeons do not consider gastro-enterostomy as a mere operation of "drainage." It is well recognized that after such surgical procedure the physiology of the stomach has been altered in many particulars; not rarely, the stomach's emptying power is accelerated and thus stagnant food, often very foul bacteriologically, remains for a shorter time in contact with a damaged mucosa; blood and lymph circulation may be appreciably changed as a consequence of relief from dilatation of the stomach and alterations in the peristaltic rhythm occur in nearly 85 per cent. of gastric extracts of cases where gastro-enterostomy has been made, it is possible to demonstrate by chemical or microscopic means, both duodenal and jejunal contents—material from parts of the gut relatively immune to malignant disease,—and finally, after gastro-enterostomy, we were able to demonstrate in a series of 211 consecutive instances of gastric ulcer, an average decrease of 19 free hydrochloric acid, together with appreciable diminution in peptolysis. Clinically, it is the general experience that in malignant disease of the stomach not associated with stenoses, gastro-enterostomy appears to grant a longer lease of life than where such has not been performed.

2. THE NATURE OF GASTRIC CANCER.

(a) *Origin.*—No one has ever seen the actual beginnings, histologically, of malignant disease of the stomach. While the experiments in tumor

transmission of Rous and Murphy reveal certain tissue reactions to the presence of artificially introduced foreign cells, it cannot be said that such reactions are entirely comparable to those occurring when the tumor arises spontaneously from native tissue. MacCarty has apparently shown that malignancy begins as a form of hyperplasia of existing cell structures. This hyperplasia results in functionally undifferentiated and architecturally imperfect primary cell elements. This hyperplasia varies in degree, and at certain stages cannot be segregated, histologically, from the forms of hyperplasia common in processes definitely benign. Apparently, in certain of these grades of hyperplasia, the line of demarcation between the malignant and the benign is, with our present methods of examination, extremely fine. In the case of gastric cancer, however, once this "halting stage" is passed, the distinction is sharp and the progress of the disease rapid. Evidence strongly supporting the pathologic proof that malignancy may develop in gastric ulcers that were apparently benign, is furnished by the histologic observation of all degrees of hyperplasia—benign, indeterminate and malignant—in sections through different portions of excised ulcers.

(b) *Course*.—Unless total extirpation is possible, gastric cancer produces death of its host. Unlimited growth, with the property of developing metastases in near or distant organs, rapidly results in fatal malignant intoxication, hemorrhage, starvation or exhaustion. Rarely do proved instances of gastric cancer live longer than three years. Unless there is early surgical interference, the majority of hosts die within a year following the onset of symptoms. In our 953 cases of cancer of the stomach, the average duration of all symptoms of a clinically malignant type was 6.9 months previous to the patient's coming for relief. There are wide variations in the rate of progress of the disease. The same type of ailment, histologically, proceeds with a strikingly different speed in different individuals. The factors concerned in the ability of gastric mucosa to resist cancer invasion are not as yet understood. One individual may be overwhelmed with the disease in a few weeks while another may successfully resist the process for several years.

TABLE I.
SUMMARY OF FACTS FROM STUDY OF 953 OPERATIVELY AND PATHOLOGICALLY DEMONSTRATED CASES OF GASTRIC CANCER

1. Dyspeptic Disturbance, Clinically "Ulcer," Previous to a Clinically Malignant Gastric Disease in.....	543 Cases or 57%
2. Dyspeptic Disturbance, Clinically "Atypic Ulcer," Previous to a Clinically Malignant Gastric Disease in.....	93 Cases or 9%
3. A Malignant Gastric Disease Appeared Without Previous Gastric Disturbance in	337 Cases or 35.7%

THAT IS
Of 953 Proven Cases of Gastric Cancer—in 646 Cases, or 66 percent, there was a chronic dyspeptic ailment, of the clinical type commonly associated with Gastric Ulcer, Preceding the Malignant Period.

The above observations offer suggestions respecting the possibilities for variability in the symptom-complex of gastric cancer. Our records show that more than 1.5 per cent of operatively demonstrated instances of the disease gave no pre-laparotomy manifestations that pointed to an ailment of the stomach. Clinically, however, the major portion of the cases fell into two great groups, with respect to course: 1, *Instances where a chronic dyspeptic disturbance clinically benign in character, was followed by an ailment of the stomach which from its inception appeared clinically malignant, and,* 2, *instances where a continuous and progressively downward disease, clinically malignant, arose in individuals who had no previous digestive faults.*

TABLE 2
SUMMARY OF CLINICAL FACTS—BENIGN GASTRIC ULCER AND GASTRIC CANCER

1. Average Duration of All Symptoms of 544 Cases of Benign Gastric Ulcer.....	11.1 years
2. Average Duration of Clinically Non-Malignant Dyspeptic Period of "Ulcer type" of 646 Cases later evidencing Malignancy.....	10.8 years
3. Average Duration of Clinically Malignant Dyspeptic Period of Cases in Section 2 (above)...	6+ months
4. Average Duration of All Symptoms of 337 Cases, Clinically Malignant from Inception....	6.9 months

Group 1.—There were 543 cases (57 per cent.) comprising this class. In 438 instances (46 per cent.) the portion of the history preceding that apparently carcinomatous was clinically that which is commonly accepted as meaning benign gastric ulcer. In 93 cases (9 per cent.) the dyspepsia previous to the onset of clinical malignancy was of benign type, and of the character which is commonly associated, clinically, with irregular gastric ulcer. The average duration of all symptoms in the apparently benign portion of the history was 10.8 years for both divisions. The average duration of all symptoms which clinically indicated the onset of a malignant disease was just over 6 months.

On account of the variability in a clinical complex indicating absolutely the presence of gastric ulcer, the above figures do not actually prove that peptic ulcer had existed before the beginning of a gastric disease which was later shown to be cancer. It is significant, however, to recall that clinically the segregation of the cases making up this group, conforms to the accepted clinical complex of gastric ulcer, and that in large series of cases when patients presenting such symptoms are operated upon, chronic gastric ulcers are found. Moreover, on further analysis of the laparotomy findings in cases making up this group, above defined, a disease process still localized and frequently presenting the microscopic characteristics of chronic indurated ulcer was demonstrated. Cancerous ulcers were found in nearly 42 per cent. of instances, and with such was associated the minimum of perigastric, lymph-gland invasion. Finally, certain interesting and perhaps suggestive facts may be adduced from note of the incidence of hemorrhage in our series of gastric cancer. There were 162 instances where during the course of the entire ailment, gross hemorrhage had occurred (17 per cent.). Of the whole number bleeding 97 cases (54 per cent.) were included in the group where dyspepsia of the ulcer type, clinically, had preceded that evidently cancerous. Of the whole number with history of melena or hematemesis, 83 cases (51 per cent.) had bled at least two years previous to their coming under observation. Of the 79 instances having hemorrhage within two years of observation, 51 cases (66 per cent.) gave histories classifying them into the ulcer-dyspepsia, clinically, preceding clinical cancer.

TABLE 3
GROSS HEMORRHAGE IN 544 CASES OF BENIGN
GASTRIC ULCER AND 953 CASES OF GASTRIC
CANCER

GASTRIC ULCER	
Hematemesis alone.....	30 cases, or 5.5%
Melena alone.....	14 cases, or 2.5%
Hematemesis with melena.....	146 cases, or 27.0%
Total Bleeding.....	190 cases, or 35.0%

GASTRIC CANCER	
Hematemesis or Melena in.....	162 cases, or 17.0%
Gross Hemorrhage at least 2 years previous to onset of Malignant Gastric Ailment	
Clinically in.....	97 cases, or 54.0%
of the Hemorrhage Class	
Of 79 Cases Exhibiting Hemorrhage within 2 years of Coming Under Observation for Malignancy—51 cases (66%) gave histories classifying them into the "ulcer-before cancer" group.	

From the above it is apparent that in the large majority of gastric cancers there is a pre-

vious long-term history of a type which it is impossible to separate clinically from benign gastric ulcer dyspepsia; that the minority of gastric cancers arise in the stomachs of individuals who have previously had no gastric upsets; and that recognition of these facts permits laparotomy at a stage of the disease when the maximum advantages, surgically, can be taken of a localized process, with a consequent high proportion of cures.

TABLE 4.
SUMMARY OF TEST MEAL ACIDITIES OF
544 Cases Benign Gastric Ulcer and 953 Cases of Gastric Cancer

GASTRIC ULCER	
Average Free Hcl.....	{ Retention Group 57.0 Non-retention Group 41.0
Average Combined Hcl.....	{ Retention Group 16.0 Non-retention Group 10.0
Average Total Acidity.....	{ Retention Group 76.0 Non-retention Group 52.0

Hcl absent in 4 cases.

Lactic Acid present in no instance.

GASTRIC CANCER	
Average Free Hcl.....	{ Retention Group 26.0 Non-retention Group 17.0
Average Combined Hcl.....	{ Retention Group 17.0 Non-retention Group 7.0
Average Total Acidity.....	{ Retention Group 40.0 Non-retention Group 15.0
Hcl absent in.....	{ Retention Group 66% Non-retention Group 32%
Lactic Acid present in.....	{ Retention Group 68% Non-retention Group 34%

Group 2.—In this class—that forming the group commonly considered, clinically, gastric cancer—there were 337 cases (35.7 per cent.). The average duration of all symptoms of stomach malfunction was 6.9 months. Careful questioning failed to elicit dyspepsia of any clinical variety, previous to the inception of that evidently malignant, from these patients. This observation does not prove that such individuals had had no gastric pathology prior to their appearing with cancer. While it is relatively uncommon for ulcer or cancer to exist without the production of digestive upset, as we have already mentioned, such a condition is not absolutely impossible. That gastric ulcer had not existed for any considerable period previous to the onset of cancer appears highly probable when we recall the fact that fully 4 of every 5 instances of surgically proved cases of that disease are associated with a fairly definite train of signs and symptoms. That gastric cancer had lain "latent" for a considerable time before giving rise to clinical manifestations, is, of course, possible, but in view of our knowledge of malignant processes in other body tissues, scarcely probable. Inasmuch as we have very little definite information with regard to the rate of growth either of gastric ulcer or

cancer in terms of weeks, months or years, it is not possible to state that the whole gamut of initial trauma to the gastric lining, ulceration and malignant change is not (in instances in this group) run through in relatively short time. In this class of cases at laparotomy, cancerous ulcers were demonstrated in 67 cases (20 per cent). These may have resulted from ulcers previously benign, from necrosis and sloughing of primary cancers, or the malignancy may have arisen primarily in ulcer form. From our present histologic knowledge, there is nothing revealed upon the examination of these neoplasms that indicates the type of the initial process.

(c) *Position in the Stomach Wall of Gastric Ulcers and Gastric Cancers.*—In 37 per cent. of our cases of cancer, the neoplasm was located at the pylorus; in 28.2 per cent. on the lesser curvature or antrum; in 18.3 per cent. it was general; in 6.8 per cent. on the posterior wall; in 5 per cent. at the cardia; in 1.3 per cent. on the greater curvature; in 0.65 per cent. at the fundus, and in 0.5 per cent. on the anterior wall. In approximately 3 per cent. of instances the location of the growth was not exactly determined.

TABLE 5.
SITUATION IN THE STOMACH WALLS OF BENIGN GASTRIC ULCERS

544 Operatively and Pathologically Demonstrated Cases		
Situation—	No. of Cases	Per Cent
Pyloric	255	47.0
Prepyloric	19	3.5
Lesser Curvature.....	168	31.0
Near Cardia	39	7.1
Posterior Wall.....	46	8.5
Anterior Wall.....	17	3.8
Total	544	99.9

The above figures are to be contrasted with such given for the situation of gastric cancers by observers who have studied mainly postmortem material (Welch, Brinton, Lebert and others). To anyone who has examined the end-results of gastric cancer at necropsy, it is not necessary to state that at such times accurate localization of the initial seat of the disease is impossible. These figures for situation of gastric cancer that have been returned from the laparotomy examination of patients are of considerable significance, when it is observed that they approximate closely the figures given by Welch and myself for the location of chronic, benign, indurated gastric ulcer. From the etiologic point of view, there may be more than a coincidence between the

similarity of situation of gastric cancer and gastric ulcer.

TABLE 6
SITUATION IN THE STOMACH WALL OF GASTRIC CANCERS

953 Operatively and Pathologically Demonstrated Cases		
Situation—	No. of Cases	Per Cent
Pyloric	353	37.0
Antrum and Lesser Curvature.....	277	29.1
Posterior Wall.....	65	6.8
Cardia	48	5.1
Greater Curvature.....	14	1.5
Anterior Wall.....	11	1.2
General	152	16.0
Not Definite	33	3.3
Total	953	100.

RECAPITULATION.

Review is made of certain phases suggested by the study of 953 operatively and pathologically demonstrated cases of gastric cancer and of 544 similarly proved instances of benign, peptic ulcer. Particular attention has been paid to the search for actual facts demonstrating the existence of an etiologic relationship between gastric cancer and gastric ulcer.

It seems to have been shown that benign gastric ulcer can be produced in a multitude of ways, the method of production having but relative effect upon the ulcer resulting, pathologically. It seems that in a given gastric ulcer it is impossible to prognose its course, duration or type of termination.

The clinical course of any gastric ulcer is highly individual. While it is true that we have undoubted histologic proof that many ulcers heal, we have yet no means of determining, clinically, in a given case, whether or no such ulcer will heal in its acute stage, will tend to benign chronicity or will become the basis of a future cancer. It is reasonable to suppose, however, from the mass of data carefully studied, which has accumulated during the past decade, that many gastric erosions and simple ulcers have a natural tendency toward healing. This not uncommonly occurs wholly irrespective of the clinical type of treatment that is carried out. It is also a commonly observed fact that a given ulcer will tend to chronicity and recurrence in spite of all known methods of therapy. In such cases, prognosis is largely dependent upon intensely individualized pathology. If the process continues benign, the resultant condition demanding treatment is largely accidental. Pyloric stenosis with gastric dilatation, hour-glass contraction, perforation involving other viscera, or malignant

degeneration may occur without regard to our clinical care. Each case is a law unto itself.

The future course of chronic gastric ulcer is dependent wholly upon tissue reaction to hyperplasia. When the clinical pathologist is not uncommonly unable to differentiate between benign and malignant hyperplasia, it is very difficult to see how the internist is to be expected to prognose the future course of any gastric ulcer. Certainly from our studies of gastric cancer, it would seem that more cases of this affection developed from previous benign ulcer than has heretofore been generally recognized.

There are no experimental, clinical or pathological data that absolutely demonstrate the mechanism of the malignant transition of benign gastric ulcer. This problem will apparently remain unsolved until the exact nature of the mechanism of malignant processes in general is determined.

Clinically, the histories of instances of gastric cancer strongly suggest that such neoplasm arises most frequently from chronic, calloused, gastric ulcer, clinically benign. It would appear that clinically it is impossible to segregate that group of chronic gastric ulcers which will undergo change to cancers from that which will continue as self-limited, benign processes. On account of the uncertainty in this regard, free excision of all chronic gastric ulcers should be performed whenever such procedure is mechanically possible. That this is a most important feature of cancer prophylaxis is proved by the fact that when gastric cancer can be definitely diagnosed, clinically and microscopically, at laparotomy, hope of radical cure is slight. The knowledge of the foregoing facts imposes a moral responsibility upon internists and surgeons with respect both to the individual patient and the human family.

SURGICAL COMPLICATIONS OF PREGNANCY.

W. C. DANFORTH, B. S., M. D., F. A. C. S.,
EVANSTON, ILL.

If one should attempt to discuss all of the surgical complications which may concern pregnant women it would be necessary to review almost the entire field of surgery, for almost any surgical condition may be found during pregnancy which would occur at any other time. I

shall, therefore, for the purpose of our discussion this evening, confine myself to a few conditions which may be looked upon as direct complications of the pregnant state and in which some differences of opinion may exist as to treatment, and shall exclude all traumatisms and surgical diseases of ductless glands. I shall discuss first the relationship of appendicitis to pregnancy.

The occurrence of appendicitis during pregnancy is not particularly common. While no statistics are available showing the exact percentage of pregnancies which are accompanied by appendicitis, it is quite safe to say that the proportion must be very small. Obstetricians of large experience are on record as having seen but few or none. It, however, does occur, and when found it merits careful attention.

In the first place one must be quite certain of the diagnosis. The confusion of appendicitis with pyelo-ureteritis is not uncommon. More than one woman has been operated upon for supposed appendicitis when the infection was in reality in her kidney. Quite recently a woman appeared upon my own ward service who had been sent in by a physician with a diagnosis of acute appendicitis and who had been examined by an interne who made a similar diagnosis, in whom the typical right sided pregnancy pyelitis existed. No diagnosis of acute appendicitis during pregnancy should ever be made until a careful examination of the urine, including microscopic examination for pus, has been made. One should not omit to ascertain if there be tenderness over either kidney. The right sided abdominal tenderness will be found in some of these cases which is exceedingly like that of appendicitis and these, when coupled with a rise of temperature, nausea, or vomiting, and perhaps accelerated pulse, will deceive the unwary observer who forgets the frequency of kidney infection at this time and does not examine the urine. In making the diagnosis of appendicitis one should not forget the fact that a certain increase in the number of leukocytes is normal in pregnancy. This fact has recently been confirmed by the work of Baer of Chicago and a Spanish observer, Chamorro.

Appendicitis and ectopic pregnancy have been confused many times and this confusion has occurred in the hands of exceedingly competent men. The confusion of diagnosis, pro-

vided it be followed by immediate operation, may be no great calamity as either condition calls for immediate interference. The ruptured ectopic, if the other clinical signs of rupture be not outspoken, may confuse the observer from the fact that a rupture with intra-abdominal hemorrhage is followed by leukocytosis. Two such cases which I have seen within the last few months have had leukocytosis occur of 30,000 and 38,000 respectively. An acute attack of appendicitis during pregnancy calls for an immediate operation. One should not run the risk of permitting a perforation and subsequent peritonitis or abscess, for the prognosis of neither of these is as good during pregnancy as at other times. Incision should be made with some regard to the size of the uterus. During the latter months it should be made higher up to allow for the displacement of the cecum. Morphin should be used post-operatively in order to avoid as far as possible any tendency to uterine contractions. Should an abscess have developed, this should be opened with as little trauma as possible, after which morphin should be given to diminish the danger of premature labor until granulation has advanced as far as possible in the abscess cavity. It is very dangerous to allow labor to occur with an abscess present, for the abdominal and uterine contractions would be apt to rupture the abscess wall, which would cause a peritonitis. Should, however, a peritonitis be present, opinion differs somewhat as to the course to pursue, some believing merely in drainage after the usual method, while others, notably DeLee, favor hysterectomy, with wide drainage of the pelvis. I should be inclined to favor the latter course. Certainly the presence of the uterus undergoing involution would be likely to be a factor against the patient's recovery.

The most important point in the treatment of appendicitis during pregnancy is, if possible, to remove the inflamed organ previous to perforation, as the mortality subsequent to perforation is estimated at 40 per cent. The history of one or more mild attacks in the past, with no evidence of a definite acute attack, requires merely careful observation, operation only being done if the acute attack occurs. One other fact peculiar to pregnancy should be spoken of, and that is, that a certain number of pregnant women have sensations of discomfort or pain in the lower right

abdomen which may be caused by compressing the appendix or cecum between the uterine and posterior abdominal walls as the uterine body rotates to the right as it rises out of the pelvis.

Cholecystitis. Attacks of cholecystitis are not so common as appendicitis and as a rule do not occur before the fifth month. If possible, operation should be deferred until after labor, although an acutely distended gall bladder requires operative relief whenever it occurs. It would be unwise to allow labor to occur with a greatly distended gall bladder for fear the forces of labor might cause it to rupture. These cases, as a rule, do not cause sufficient disturbance to necessitate operative interference and may be tided along to a later date. If operation for empyaema or distension of the gall bladder from any cause is unavoidable, the advantages of nitrous-oxide and local anesthesia should be considered.

Salpingitis. Acute attacks of salpingitis are not common during pregnancy. This is a logical conclusion to the fact that salpingitis is usually a bilateral process and as sterility follows a large percentage of attacks of salpingitis, pregnancy is very rare in these cases. Should, however, an acute attack of salpingitis occur, there is no reason why it should not be treated exactly as it would be at other times, with the exception possibly of the use of hot douches. Operation should be done only for abscess formation and laparotomy will be very rarely indicated.

Ovarian Tumor. This is not an especially frequent complication of pregnancy. McKerron, who has published the most complete article on the subject in the English language, estimates the usual frequency to be one in about 1,500 pregnancies. Fehling, in 17,832 cases, found ovarian tumor only twenty times. Of the reported cases of ovarian tumor in pregnancy dermoids represent about 25 per cent of the tumors. So far as the influence of the tumor upon the progress of pregnancy is concerned, in a great majority of cases pregnancy may advance without being influenced by the presence of the tumor. The complications during pregnancy which may occur are torsion of the pedicle, rupture of the cyst, suppuration or suppuration and rupture. Twisting of the pedicle will occur about three times as often in ovarian tumor associated with pregnancy as in those found in the non-pregnant state. McKerron believes that it may

be expected to occur in one out of eight cases. Very large cysts predispose to abortion, this probably being due to the efforts of nature to relieve the increasing intra-abdominal pressure. This is not universally true, for some women with exceedingly large ovarian tumors go through to term. As to the influence of the tumor upon labor, one may say that the situation of the mass is of more importance than its size. A small mass at the pelvic inlet or wedged within the pelvis, is of very much more importance so far as its influence upon the course of labor is concerned than a much larger one situated high in the abdomen. The majority of opinion at present is in favor of the immediate removal of ovarian tumors as soon as recognized. It has been urged of late that operation might be deferred until the fifth or sixth month in order to avoid the possible removal of a functioning corpus luteum. If a corpus luteum should chance to be in the ovary, which is also the seat of a cystic tumor, its removal in the early months will increase greatly the likelihood of abortion.

The treatment of ovarian tumor during labor depends very greatly upon the conditions present. In general, however, the presence of a tumor obstructing delivery may be looked upon as a serious complication. In 720 of the 1,290 cases collected by McKerron, the mass was allowed to remain until pregnancy terminated. Of these 152 women died and this mortality would have been greatly increased if in some of the cases operation had not been done during labor or immediately thereafter. In addition, 30 per cent of the babies were lost.

If the tumor may be pushed up out of the pelvis from below, labor may be allowed to proceed naturally or may be instrumentally terminated. If this is not possible and if conditions are not present which would permit a safe caesarean section, it is best to open the abdomen, remove the tumor and then deliver from below.

If a tumor be not discovered until toward the end of pregnancy and if it lie in a position which would permit it to seriously obstruct labor, it would probably be very difficult to remove it by laparotomy. Under these conditions the case may be more safely allowed to go to term and to undergo a caesarean section with the removal of the tumor mass at the same time. I should be rather inclined, if the diagnosis of ovarian cyst

is made early in pregnancy, to remove it immediately in spite of the possible danger of removing the functioning corpus luteum. The danger both to mother and child if the tumor be permitted to remain until term, outweighs in importance the possible chance of premature labor. My own experience with this complication comprises three cases. In one of these a primipara of 40 in whom the tumor mass lay over the pelvic inlet, and in whom, of course, a later pregnancy was scarcely possible, the tumor was not disturbed during pregnancy, but caesarean section with removal of the tumor was done at term. In another case in which the tumor was in the lower half of the abdomen, about four inches in diameter and freely movable, it was removed at about the fourth month. This case went to term normally. This tumor turned out to be an adeno-fibroma, one of the solid tumors of the ovary. These are rather rare and comprise about 2 per cent of all ovarian tumors. The third case was one of a young woman who was not seen until during the seventh month. The mass was felt wedged firmly in the pelvic inlet and I was not certain whether it was a fibroid or an ovarian tumor. She was delivered by caesarean section at term with removal of the tumor.

As to the question of operative procedures in general, during pregnancy, it should be said that any operative attack of whatever nature or for whatever condition it may be done, should be carried out with the greatest possible gentleness and with the utmost speed. When the abdomen is opened the uterus should, if possible, not be touched, and if necessity compels that it be handled, it should be as little as possible and with the greatest attainable gentleness.

If it is necessary to introduce drains for the relief of a septic condition it should not be permitted, if it is possible to avoid it, to come in contact with the uterine wall. The slow hesitating operator, or he whose manipulations are characterized by roughness, has no place in the abdomen of the pregnant woman. In operating upon the pregnant woman we are operating upon a patient who is physiologically slightly handicapped, nevertheless, operative procedures in competent hands are carried out with a high degree of safety. Abortion or premature labor must be expected in a certain per cent of cases. This mishap in the case of ovariectomy is esti-

inated by Flatau and Wahmer as 17 and 22.4 per cent, respectively. The maternal mortality is estimated by different authors to be from 2.7 per cent to 5.9 per cent.

It is well to follow any operative procedure by a dose of morphin to decrease the likelihood of uterine contractions. As to the anesthetic it should be said that chloroform should not be used because its destructive effect upon the parenchymatous organs, both of mother and child, renders it peculiarly unfit for use during pregnancy.

In considering the question of any operative procedure during pregnancy one should be convinced of the necessity that it be done for nothing should be done during pregnancy, which can be deferred with reasonable safety. This question has been very well epitomized by Ochsner in a recent discussion, as follows: "Do no surgery during pregnancy which can possibly be avoided, but do not omit any surgery which is genuinely necessary."

MEDICAL COMPLICATIONS OF PREGNANCY.*

R. A. SCOTT, M. D.,
EVANSTON, ILL.

The complications under this heading can include so many abnormal systemic disorders, that I thought that it would be more profitable to devote the time to those complications which had to do with the heart and with the organ so closely associated with it, in pregnancy, the kidney.

During the first three months of pregnancy there is very little added strain on the normal heart, but from the fourth month on there is an increasing work for the heart to accomplish. The blood pressure becomes elevated and the volume of blood is slightly increased. The resistance to the blood flow does not diminish, so there is a gradual relative enlargement of the left ventricle, and any breaking down of the heart action is due to some pregnancy toxin, valvular deficiency, muscular weakening, or to some mechanical cause, following too strenuous exercise.

Heart lesions do not usually make prognosis grave unless very advanced. This is particularly true for uncomplicated valvular heart lesions in which even repeated pregnancies do not necessarily render a grave prognosis. One well known

authority makes the statement that less than one per cent of heart lesions are fatal during pregnancy. A recent report from the Vienna Clinic of sixty cases show that forty were affected with mitral insufficiency, of which twenty-six compensated; all mothers saved, but three dead babies; fourteen uncompensated, one mother and two babies lost. Five had a mitral stenosis. One compensated and no mortality; four uncompensated, with the loss of three of the babies. Twenty-seven had double mitral lesions. Ten compensated, with loss of two of the babies; seventeen, uncompensated, with loss of ten of the babies.

It is not only our duty to carry a woman through her pregnancy with no mortality to either mother or child, but to watch that affected heart from every angle, in order that when the labor is over, we will have a heart that is still compensating and not one that has lost all of its reserve power and is to be followed by all the signs of a broken compensation. Therefore, certain rules must be laid down for those patients who, when they come to you, are suffering with some heart lesion. Such a woman is more susceptible to toxemias and the functions of her skin, digestive organs, and kidneys must be carefully watched. A large amount of fresh air is needed, for her blood has not its proper supply of oxygen. Outdoor exercise should be regulated in accordance with the reserve power of her heart. Her diet should be strictly supervised. Her lungs should be examined regularly and any signs of failing circulation noted. And when labor starts, no matter how slight the lesion from which the patient suffers, no matter how well she has passed through her pregnancy, all means available to reduce the strain on the affected heart must be used. Therefore, during the first stage of labor small doses of morphin are indicated, especially when there is any sign of failing strength of the heart action. During the second stage nitrous oxide and oxygen should be used with every pain. If there should be any question as to whether or not the mother would be able to deliver her baby, no time should be lost in increasing the amount of anesthetic beyond the analgesic stage to deep anesthesia and a forceps delivery performed, or in some cases caesarean section. The after care of the patient should consist of proper medication, prolonged rest and carefully regulated exercise. The report

*Read before the Evanston Medical Society, Jan. 22, 1917.

on two cases, I think, will illustrate what has just been emphasized.

Pregnancy complicated by mitral stenosis, allowed to continue, age of patient, 24; in the third month of her pregnancy, was referred to the Brooklyn Hospital for consideration of termination of pregnancy. Her chief complaint was rapid heart action and nervousness. She had suffered from chorea when a child. She has had symptoms for a year. They have not become worse during the last three months. Examination by the internist showed a well nourished woman, weight 103 pounds. Her lungs are sound. The functions of her kidneys and digestive organs are normal. She has no sign of circulatory derangement. Her thyroid gland is somewhat enlarged. Her heart is normal in size; left border 10 cm. from midsternal line. Right border at right sternal margin. There is a presystolic thrill at the apex. Diastolic shock is felt over the base. Her pulse is 100-120. Her blood pressure is 145 systolic and 90 diastolic. Diagnosis, mitral stenosis with regurgitation.

In deciding on a plan of treatment for the patient, the following points were given consideration. Her heart lesion, mitral stenosis, is an unfavorable one. A blood pressure already above the normal and a trace of albumin in the urine still further complicate the situation. On the other hand, she is young. Her heart muscle is sound. Compensation is perfect. She is not any worse now than before pregnancy began. She will never be in a more favorable condition to carry a pregnancy to term. It is estimated that her cardiac reserve is sufficient for the strain of this pregnancy provided that toxemia of pregnancy can be avoided. If she should go through to term, she will be delivered by caesarean section, and sterilized at the same time. She will be sterilized because the care of more than one child would be a greater burden than her heart could stand.

The following case shows how the reserve force diminishes with age and frequent pregnancies, and how the burden of an abnormal pregnancy or difficult labor will break the compensation which has been sufficient for a normal pregnancy and easy labor:

Mrs. A. M., admitted to Bushwick Hospital on Jan. 24, 1916, in labor at the end of the eighth month of her thirteenth pregnancy. She has pains every five minutes. She suffers with dyspnea, orthopnea, dizziness, and spots before the eyes. Her respiration is rapid and labored, her color is dark, her lips and nails blue, her limbs and face swollen, her abdomen enormously distended. Her heart is enlarged to right and left. The apex beat is diffused. There is a loud blowing, systolic thrill at the apex transmitted to the axilla. There are sibilant sonorous rales over the chest, and many moist rales over the bases of the lungs. The uterus is large, tense, and greatly distended. The perineum is relaxed, vagina roomy, cervix, soft, thin, and dilated three fingers.

Membranes tense and bulging. She had rheumatism when young. Otherwise good health. Has had no heart symptoms until the present pregnancy. Has had twelve easy labors without cardiac distress. At the sixth month of the present pregnancy dyspnea, edema of limbs, and precordial pain. She recovered after three weeks in bed.

Diagnosis—Labor complicated by mitral incompetency with broken compensation.

Treatment—She was given morphin and digalin per hypo, and the membranes ruptured. A certain amount of relief was obtained in this way. She was kept under the influence of morphin and the heart supported by large doses of digalin and allowed to proceed. After four hours she was delivered of triplets. She made a normal convalescence. Her heart rapidly regained tone. She left the hospital in good condition and has had no return of dyspnea or rapid heart.

I have chosen two subjects under kidney complications, pyelitis or pregnancy and eclampsia. Both can be called border-line complications under the heading of surgical complications, but I shall endeavor to limit my words to the medical side.

Etiology. A. Predisposing causes:

1. Pregnancy, usually causing symptoms about the fifth or sixth month, because at this time there is a beginning pressure on one or both ureters at the pelvic brim owing to the greatest diameter of the uterus occurring opposite this level.

2. Previous chronic infections also predispose to this complication.

B. Exciting cause: Five varieties of micro-organisms have been shown to play an important part in this infection: *Coli communis*, *Staphylococcus pyogenes aureus*, *streptococcus*, *gonococcus*, and the *tubercle bacillus*. In a recent series of fifty-six pyelitis cases during pregnancy, forty-four were caused by the *coli communis*, two by the *staphylococcus*, nine by the *streptococcus* and one by the *gonococcus*. The mode of infection by these bacteria, I believe, is still an undecided question. One authority states that the *coli communis* ascends the urinary tract as a parasite and is generally preceded by pus forming organisms, and that 65 per cent of pyelitis cases are preceded by bladder symptoms. Three other routes of invasion have been suggested: to the kidney, by way of the lymph stream; to the pelvis, by way of the blood stream; or primary infection in the bladder and then up ureters into kidney.

From a series of 184 cases recently finished it

has been found that pyelitis occurs more often in women at or near the age of twenty-four and at the fifth month of pregnancy.

The symptoms of this complication, clinically, show a variable picture.

1. Acute:

Occur after exposure to cold or following a severe attack of gastro-enteritis.

a. Severe pain on micturition, strangury, general malaise.

b. Vomiting soon follows, accompanied with rigors.

c. Severe pain in the right lumbar region and hypogastrium and frequently anterior renal pain which continues toward groin and down inner aspect of right thigh.

d. Temperature high and oscillating.

Abdomen is tender in hypogastrium and in right posterior renal position, with muscular resistance in right groin.

Urine examination shows pus and epithelial cells and motile bacteria.

In a few days pain may occur in left kidney region.

Temperature is variable and may fall by crisis or lysis.

2. Chronic.

a. Onset may be very insidious, preceded by slight albuminuria.

b. Langour, pallor, anorexia, and constipation.

c. Wasting and night sweats, with an occasional pyrexia.

d. There is usually a leucocytosis and the urine will contain pus cells and often granular casts.

Of 187 cases, 55 per cent affected in right kidney, 35 per cent affected in both kidneys, and 10 per cent affected in left kidney.

Diagnosis. Made generally on:

1. Irregular temperature.

2. Pain and renal tenderness.

3. Urine, usually acid, cloudy, pus and albumin.

Treatment. Is best shown by a case under the service of Dr. H. T. Hicks of Boston:

Patient, aged 20 years. Taken with acute pain on right side of her abdomen, during fifth month of second pregnancy. First pregnancy and labor were normal. During present pregnancy has had a great deal of constipation. Three weeks before admission to hospital she had aching beginning in right posterior

renal region and rapidly spreading to the front and downward. Pain became very severe and temperature was elevated and malaise was marked. No increased frequency of micturition or sign of cystitis. After two weeks in bed at home and with no decrease in pain, she entered hospital, with temperature of 103 degrees. Rapid and feeble pulse, severe abdominal pain and most tenderness on deep pressure below twelfth rib, behind, and in right iliac fossa and over appendiceal area.

Patient was put on milk diet, and given gr. 10 of urotropine and gr. 3, potassium iodid every four hours. The urine showed a pure culture of *B. coli*. After four days in bed with above treatment, there was no improvement. Ten c. cm. of colin vaccine were given. The temperature dropped almost immediately and remained normal. The pain was gone in a few hours. Pus remained in the urine for one and a half months, but for 48 hours at a time it would be absent. Three weeks after leaving hospital, she had a return of the pain, but this disappeared with rest in bed. No return of pyrexia.

In respect to the other kidney complication, eclampsia, I wish to lay special emphasis on the importance of high blood pressure.

The real cause of eclampsia is still unknown, but the best theory is that of some causative toxemia, and that it comes from the liver, fetus, placenta, intestines, the general metabolism, disturbed glandular balance, or from bacterial activity.

Symptoms. We have a few symptoms, though, which are very typical of this condition: headache, epigastric pain, spots before the eyes, more or less albuminuria, casts, and high blood pressure. Concerning this last symptom a few facts taken from the report on 5,000 maternity cases in the Boston Lying-In Hospital, are interesting:

1. The normal range of blood pressure, 100-130.

2. Under 20 years of age, had highest percentage of toxemia.

3. Highest blood pressure in elderly pregnant women.

4. Between ages of 20 and 30 years most normal pregnancies.

5. There is a tendency for the blood pressure to increase with the number of pregnancies.

6. The percentage of albuminuria is variable.

7. Elevated blood pressure is often the first sign of toxemia.

8. The degree of elevation points more surely to the likelihood of toxemia than does the degree of albuminuria, and in this series elevated blood

pressure preceded albuminuria twice as often as it followed it.

9. Sixty-four of the entire number had toxemia, six of these had a nephritis before pregnancy and fifty-eight were true pre-eclamptic toxemias.

10. They were more frequent in cold weather than in warm.

Treatment. Consists in the early stages of the general hygiene of pregnancy, careful watching of the urine and when any symptoms arise, put the patient on just enough nitrogenous food to sustain life, cleanse out the intestinal tract, especially the lower part, and stimulate the organs of excretion in order that the poisons in the blood may be thrown off and if the blood pressure should remain persistently high, vivisection should be performed and an equal amount of salt solution injected to dilute the toxins. Hot packs are also used to start the secretions, especially when the patient has any suspicious symptoms of an approaching convulsion. If the toxemia goes on to the convulsion stage then morphin in large amounts must be used, and if unsuccessful, the induction of premature labor is indicated.

1102 Elmwood Avenue.

THE TREATMENT OF SPECIFIC DISEASES BY NON-SPECIFIC FOREIGN PROTEIN. A REVIEW.

FRANK B. LUSK, M. D.,
CHICAGO.

The introduction of bacteriology and later of immunology into the field of medicine, brought forth in the use of serums and vaccines a new method in the prevention and treatment of disease. The observations, that vaccination with smallpox virus and typhoid vaccine protected against these diseases alone and that Behring's serum was curative in diphtheria only, emphasized the specific character of these agents, and from this was readily deduced the erroneous conclusion that all such therapy to be effective must be specific. The nicety and plausibility of Ehrlich's side-chain theory went far in explaining this phenomenon of immunity and the curative effects of antitoxin. The opsonic index of Wright, an outgrowth of the above, served to strengthen our belief in specificity and it was with timidity that clinicians not thoroughly convinced of this medical dogma, dared venture

clinical evidence to the contrary. While I do not wish in any way to disparage the work of these wonderful minds—for we all know it has been the basis of many of our greatest advances—still in view of some of the more recent researches we are forced to discard or at least modify some of this teaching, the result of immunological studies.

That the phenomena of immunology were not entirely nor in their fullest sense specific, seems to have been established by Vaughan, who has shown that animals immunized to *B. prodigiosus* and *B. subtilis* have also a certain degree of immunity to typhoid and cholera. He was able to obtain the same degree of transitory immunity to colon bacilli in animals by the use of egg albumin. Clinically, and not at all uncommonly, specific diseases often improve with the implantation of an intercurrent infection. Nor is this observation a new one. Shortly after the advent of diphtheria antitoxin several French workers gave unconscious expression to the non-specific factor within antitoxic serum when applied to diseases coincident with diphtheria. It was noted that diseases coincident with diphtheria not infrequently improved and occasionally were cured following the use of antitoxin. The same serum applied to non-diphtheritic affections such as rheumatic fever brought the same decided improvement. Because of the incompleteness of their work and its incompatibility with the idea of specificity, it gained but little recognition, and it was not until 1892, following the use of Coley's fluid in sarcoma, that the profession was awakened to the realization that "there was something in this."

The greatest departure, however, occurred when the doctrine of specificity, as applied to vaccine therapy was shown by Kraus and Mazza, Lüdke (Münch. med. Wchnschr., 1915, 62, 321) and one of our able clinicians, J. L. Miller (Ill. Med. Jour., 1916, 29, 8), to be partly, if not entirely, untenable. Stimulated by the work of Frankel, Penna, Ichikawa, Gay and others in the manner of treating typhoid fever with vaccine, these workers determined to try the effects of non-specific substances such as *B. coli*, proteose and albumose intravenously. They noted the same relative number of improvements, remissions and crises, in about the same proportion of cases treated, as did those writers work-

ing with typhoid vaccine. This seemed to prove definitely that the non-specific factor played the important rôle and that the specific factor, especially with reference to therapy, must be of relatively little importance.

What this non-specific factor is, is as yet undetermined, but the probabilities of its being the foreign protein, led to the further thought that the other diseases might respond equally favorably to this method of treatment. The work of Miller and myself (*J. A. M. A.*, June 3, 1916, and Dec. 30, 1916), gives proof of the correctness of this view. The quick response of the arthritides to intravenous foreign protein such as typhoid vaccine, proteose, chicken serum, pollen vaccine, etc., and the striking improvement and what might be considered cures with the same agents in cases of typhoid fever, tonsillitis, pharyngitis, iritis and pneumonia seems to be especially significant. Wells and Mathers (unpublished) working with erysipelas and pneumonia, and Culver and Welch (unpublished), working with gonorrhea in its various manifestations, likewise have observed remarkable improvement in these diseases by the use of foreign protein intravenously, the kind of protein making little difference. Müller and Weis (*Wien. klin. Wchnschr.*, 1916, 29, 249) in their treatment of gonorrhea and its complications have reported encouraging results from the intragluteal injection of sterile milk while Saxl, Bruck and Kiralihyda (*Münch. med. Wchnschr.*, 1916, 63, 511), using the same agent in typhoid fever, feel that it bids fair to become a routine treatment in this disease.

Recently Friedlander (*Wien. klin. Wchnschr.*, 1916, 29, No. 42), employing this treatment in trachoma, manifests not a little enthusiasm over his success and cites several cases of patients, in whom, after varying periods of only partially successful treatment under the older methods, the eye symptoms and much of the pathology cleared up within twelve to twenty-four hours after a single intragluteal injection of sterile milk. Engman and McGarry (*J. A. M. A.*, Dec. 9, 1916,) used typhoid vaccine intravenously in lupus vulgaris and psoriasis with very gratifying results, comparing favorably with that obtained by Miller and myself in a refractory case of acne vulgaris of three years' duration. Smith (*J. A. M. A.*, June 3, 1916), impressed with

the improvement in gonorrheal complications incident to anaphylactic shock, induced this phenomenon to a therapeutic degree with normal horse serum. His results in this disease, so treated, are equally interesting.

From this series of observations, one feels justified in saying, that, while we dare not question the specificity of vaccine in preventive medicine, we are fast drifting from this idea as it relates to curative medicine. We have come to that point where we must seek an explanation other than the anti-body theory, or at least modify it or couple it with some newer teachings. Thus far no new explanation has been offered that will explain all the phenomena at the basis of this upheaval of scientific lore. However, the admirable work of Jobling and Peterson seems to be a step in advance. These observers who dared break ties with the advocates of specificity have offered us experimental evidence that is at least plausible and tangible. They believe non-specific ferments, especially the proteolytic ferments, proteose and ereptase, to account for the detoxication in such infectious diseases as typhoid and pneumonia. They hold that at some point in the disease process these ferments, due to an inhibition of the anti-ferments, are mobilized and gain ascendancy, thereby splitting the toxic and easily eliminated substances. This mobilization of ferments, they are inclined to think, is a physical phenomenon, brought about in the case of introduction of a foreign substance such as proteose or kaolin, by a lessened colloidal state of dispersion. (*Studies on Ferment Action: Jour. Exper. Med.*, 1912 to 1916.)

122 S. Michigan Ave.

MODERN ASPECT OF THE CANCER PROBLEM.*

G. KOLISCHER, M. D.,
CHICAGO.

Attending Surgeon to the G. U. and Radio-Therapeutic Departments of the Michael Reese Hospital.

It seems that the issue of cancer therapy has entered into a new phase. The endeavor to infinitely devise new methods of dealing with malignancy has given way to a decided attempt at developing and exploiting methods that on trial were found to furnish results. At the same

*Read before the meeting of the Chicago Medical Society, Oct. 18, 1916.

time the profession emancipated itself from the idea that at this time there is available such a thing as a specific or a panacea which may, with certainty, cause the disappearance of a malignant growth. Only by drawing intelligently on all modern scientific resources will one be able to achieve satisfactory results. These three methods above are the employment of the knife, electrocoagulation and chemotherapy. Surgery by cutting still has to be considered as the mainstay in dealing with malignant tumors, and if employed in the right way at the right time, will furnish a certain number of permanent cures, this percentage being dependent on the peculiarities of the cases concerned. Quite a few observers claim that the number of permanent results will increase if each operation is followed by intense radiotherapy.

In case the use of the knife should be excluded for technical reasons electrocoagulation may be employed for the total or partial removal of malignant tumors. Electrocoagulation consists in accomplishing immediate necrosis of tissue by penetrating the structures with high frequency currents of high amperage and low tension.

This surgical diathermy is preferable to the employment of the actual cautery as the Paquelin or the galvanocautery or the soldering iron for the following reasons: The technique of its application is decidedly more reliable, the dosage can be measured with great exactness, the hemostasis is perfect and the danger originating in the absorption of poisons produced by burns is eliminated. Extensive cauterization is known to be occasionally followed by an overwhelming inundation of the body by such toxic products or by the development of deep ulcers of the stomach or the duodenum. This surgical diathermy may either accomplish the total destruction of the tumor concerned without any danger of adjacent inoculation or may be used for the removal of the bulk of the growth only, thus making the deeper layers accessible to penetration with therapeutic rays.

As to the third method, the chemotherapy divides itself in two categories, radiotherapy and the injection of chemotactic substances either directly into the tumor or in the system in general.

In radiotherapy there are used rays produced by x-ray tubes or rays emanating from radioactive substances. The materials mostly in use are radium salts and mesothorium, the latter appar-

ently preferred by most of the successful European authorities.

The modern application of Roentgen rays to malignant tumors is based on the principles of using hard tubes, of interpolating filters between the tubes, and the object to be rayed, and by administering at each sitting large doses, those being strictly controlled by exact dosimetry.

Radioactive substances are furnishing possibilities to radiotherapy, when Roentgen rays are not usable, either because it seems desirable to apply the therapeutic rays continually for a length of time not attainable by the use of x-ray tubes or if the topographic location of the tumor would prevent its penetration by x-rays. In certain instances a tumor may yield to radium or mesothorium rays after having proven itself refractory towards Roentgen rays.

It has to be admitted that radiotherapy has furnished "Clinical Cures" only in a minority of the cases submitted to it, but on the other hand it has to be considered that quite a few of these successful cases were inoperable; it may also be stated that if radiotherapy furnishes such results at all, they were obtained without the risk of an operation and without concomitant mutilation. Radiotherapy, even if failing in procuring cures, may still be of value; there are cases on record that originally having been inoperable, became operable after raying and finally radiotherapy is a powerful agent in managing absolutely hopeless cases by relieving the suffering of the patients and by securing euthanasia.

Chemotherapy carried out by injecting enzymes produced by organs, bacterines, colloidal metals, emulsion of glands, autolysates has furnished either negative results or favorable ones only sporadically.

We tried to approach this problem from a different angle. Modern biology teaches us that certain organs are producing materials that will influence only certain categories of cells as to specific action, proliferation or eventually absorption. In the same way it ought to be possible to discover or to develop materials that will exclusively influence only those cells, the metabolism of which it is desirable to change or which one intends to destroy completely. (Abderhalden.) The most effective way to destroy chemically a cell is to make its plasma soluble and absorbable to peptonize it. *Bacillus proteus* be-

ing an efficient peptonizer naturally came under consideration. During the preparatory studies and experiments Dr. J. Eisenstaedt called the author's attention to the interesting work of Dr. Kendall of the Northwestern Medical College, concerning bacterial enzymes.

We, therefore, started to use proteus enzyme prepared after the method developed by Dr. Kendall. These applications furnished very interesting results, to the leading points of which I would like to call attention. Larger quantities injected into a tumor produced extensive necrosis, while the injection of very small quantities produced in the successful cases a shrinkage and eventual disappearance of the tumor without any noticeable breaking down. In every instance the injections into the tumor were followed in a short time by pronounced general reaction which was characterized by considerable rise in temperature, chills and nausea. A very interesting point is that the injection of the enzyme in any other part of the body, outside of the tumors, was not followed by any general reaction. The injection of the enzyme into a gumma and into a hard puerperal exudate furnished also a negative result as to the general reaction.

In those cases in which we feel entitled to claim a clinical cure, the result became apparent after a very few treatments. All the cases not improving promptly seem to be failures as to cure, although in most of them a certain improvement was noticed. In two of the successful cases only a clinical diagnosis of malignancy was made.

Another theoretical consideration led to the practical application of secondary products of the enzyme therapy. If the assertions of the modern biologists are correct, then every time that products of destruction of cell proteids are thrown into the circulation, the host will develop certain substances to fight and neutralize the effects of these waste products, these substances being denominated as defensive and protective ferments. It, therefore, seems plausible to attempt to collect such defensive and protective ferments out of a patient being under the reaction of the enzyme injected into his tumor and to embody them into the system of another patient carrying a tumor of a character similar to the one borne by the first individual. If this theory be correct than the second patient must be benefited either in this way, that his tumor is

locally and directly affected or that the symptoms characterizing malignant cachexia are relieved, or that both those actions may simultaneously become apparent. Our observations seem to bear out these contentions. While only in one case, an epithelioma of the gums, a decided local effect was to be observed under the influence of this secondary serum, in all cases of general carcinosis a decided general improvement could be noticed, characterized by a decided rise in hemoglobin, gain in weight and pronounced betterment in the general feeling of the patient. It also seems that some tumors originally refractory to the radiotherapy became sensitized by direct and indirect enzyme therapy so that they began to shrink under the following application of the rays.

In reviewing our experiences we arrived at the conclusion that our first idea of making a tumor disappear by directly peptonizing it, is erroneous and that all the favorable results obtained are rather due to the retroactive influence of the ferments mobilized by the injection of the enzyme into the tumor.

To summarize, the fight against malignancy has to be conducted by the co-operation of the surgeon, the physicist and the biological chemist. At present radiotherapy and chemotherapy are apt to produce good results in a minority of cases. Diathermy, radiotherapy and chemotherapy enable us to make life bearable for hopeless cases. Our efforts must be concentrated on the issue of why the majority of cases are refractory toward these methods. If such researches will succeed in uncovering the nature of these obstacles and in finding means to overcome them, then the hope will be justified that Abderhalden's prophecy will come true, "The ideal of the future is the specific cell therapy."

ADIPOSIS DOLOROSA (Dercum's Disease).*

WITH REPORT OF CASE.

A. G. WITTMAN, M. D.,

PEORIA, ILL.

Physician, Peoria State Hospital.

In 1888, Dercum¹ described a disorder characterized by irregular, symmetrical deposits of fatty masses in various portions of the body preceded or attended with pain. Writing in May, 1909, G. E. Price² found fifty reported cases of

*Read before the Illinois State Hospital Association at Chicago State Hospital, Jan. 25-26, 1917.

this disease. Since then many cases have been reported.

While this disease is most common in middle life, cases have been reported as early as the eleventh year and as late as the seventy-eighth year.

A few cases have been reported in men, but the great majority of cases have been found in women. That the causative factor of this disease is obscure is shown by the following list of etiological factors given in reported cases: Alcoholism, syphilis, tuberculosis, traumatism, emotional excitement, toxemia, menopause, abortion, pregnancy and heredity. Cheevers reported cases in a father and a sister. Hammond reported two cases in sisters, while two cases in mother and daughter have been reported by Carroll⁵. W. Kloninger¹² reported a case following the removal of an ovarian tumor, and the removal of an ovarian tumor and ovariectomy are given as etiological factors in a case reported by Sabatucci and Zanelli¹¹.

Frequently developing on a neuropathic basis, many of these patients terminate their existence in insane hospitals.

While adiposis dolorosa is usually looked upon as a separate affection it is closely allied to several other fatty conditions.

The following fatty affections apart from simple obesity have been enumerated by McCarthy⁶:

1. Adiposis tuberosa⁸ simplex Anders found localized fat tumors, sometimes painful to pressure, scattered through abdominal fat. These differ, however, from nodules seen in adiposis dolorosa in their formation and in their disappearance under dietetic and hygienic measures.
2. Adiposis cerebialis⁹, described by Frohlich as dystrophia adiposa genitalis has a close analogy to adiposis dolorosa. It consists of excessive general adiposis, developing during the course of brain tumor involving the pituitary body and in one case the pineal gland. Defective development of genital organs is frequently associated.
3. Symmetrical adenolipomatosis⁹, a fatty condition described by MacCormac, characterized by large localized fat masses found in neck, axilla, trunk, asthenia, mental irritability, apathy, hypochondria, enlarged spleen, increased pulse and decrease of small mono-nuclear cells in blood.

4. Multiple lipomatosis. Multiple isolated lipomatous tumors have occurred symmetrically

placed in different parts of the body. On account of their arrangement and their association with tabes, general paralysis of the insane, sciatica, etc., it has been assumed the nervous system was the cause of the affection.

Seven autopsies performed on cases of adiposis dolorosa have shown atrophic lesions with compensatory hypertrophy of the thyroid gland. Tumor of the pituitary in three cases, interstitial neuritis in the fat tissue in three cases, and slight sclerosis of the posterior column of the spinal cord in one case have been found. Dercum and McCarthy⁶ describe a case with autopsy showing a tumor of pituitary body with hypoplasia of genital organs, extensive lymphoid infiltration of the fat and hemolymph glands. This case seems to form a connecting link between adiposis dolorosa, adiposis cerebialis and symmetrical adenolipomatosis. McCarthy thinks that the cause of the pain found in the disease is a low grade interstitial neuritis. The most pronounced symptom of this condition is a diffuse deposit of fat, containing sensitive nodules the seat of spontaneous pain.

Pain is a prominent symptom present at sometime or other and may precede the development of the fatty nodules which are characteristic of this condition.

These nodules are the end stage of a process which begins by the formation of painful, reddened edematous areas from one to four inches in diameter. Nodules in the fat remain as circumscribed masses sensitive to pressure and associated with diffuse pain described as neuralgic, rheumatic, etc.

Associated symptoms consist of asthenia, a querulous irritability, sensory changes and disturbances of the vasomotor system such as variations in sweat secretion, cyanosis of extremities, dermatographia, trophic ulcers and subcutaneous ecchymosis. Prognosis as to life is good, but as to cure is bad. Thyroid gland in increasing doses has benefited some cases, but so far has produced no change in the case I am about to report.

Mrs. E. S. was admitted to the Peoria State Hospital December 20, 1916. The only history of her physical and mental trouble, I have been able to obtain, is given by the patient and, because she is mentally defective, is far from satisfactory. Her father and mother died when she was very young and she knows little about them. She has one brother and one sister living, but has not seen them for years. Letters sent to their address as given by her

have been returned undelivered. There is nothing special to be noted about her childhood with the exception that she developed a divergent squint of the left eye. She attended school off and on for a "short time" and was in the first grade at nine years of age when she left and did housework at home and for neighbors. She says she was happy, sociable, in good health, doing housework, also working as a cook in restaurants until about twelve or thirteen years ago. At this time, pain, sharp and paroxysmal, developed in her right thigh and gluteal region. After a time—how long she does not know, but thinks it was a few months—this region began to show fatty enlargement. Sometime afterwards—she does not know how long—pain began on the opposite side and was followed by fatty enlargement of upper part of the leg, the thigh and the gluteal region. Her weight before this trouble began was 140 pounds. At present, she weighs 258 pounds.

The patient has been treated by many physicians, but has obtained no permanent relief of the paroxysmal pain which she suffers at irregular intervals. The pain seemed to involve the fat and muscles of the affected areas and frequently interrupts her sleep.

Six years ago, a surgeon removed a large mass of fat from the inner surface of the left leg about the knee. In 1912, she married a laborer and had one miscarriage. Says her husband was good enough to her, but she had to make a living for him. He left her six months after her marriage and she has not heard from him since. She thinks "someone took him away." Three years ago a mass similar to the one removed six years ago was removed from the inner surface of the left leg about the knee by another surgeon. One year ago, she had a large mass weighing twelve pounds removed from the outer side of the right thigh and gluteal regions.

When not in hospitals following these operations,

she continued to work as cook in different restaurants. A short time before her admission, the patient went to Iowa to keep house for a single farmer, an early acquaintance of hers. In a short time, she began to think that her neighbors were talking about her and were accusing her of having immoral relations with her employer. She left this place, was returned by Iowa authorities to Piatt county, Illinois, her home, and from there committed to the Peoria State Hospital.

The physical examination shows her to be a woman about forty years of age 65½ inches tall, weighing 258 pounds. There are large, irregular masses of fat distributed over the thighs and gluteal regions, as shown by photographs. (Fig. 1-2-3-4.) On the inner aspect of both legs just below knees, on the outer aspect of right thigh, and in the right gluteal region are large post operative scars. Spontaneously, she says, "I have pains all over by spells of my flesh and in my bones." The respiratory, cardiac, digestive, urinary and genital systems are negative. The patient menstruates regularly. The urine, blood and Wassermann examinations are all negative. The neurological examination shows no gross defect of spinal senses. The fat masses are tender to deep pressure and are the seat of a dull aching and at times sharp pain. There are no other subjective cutaneous complaints. Tactile, pain, temperature and stereognostic sensibilities, normal. There is no abnormal nerve or muscle tenderness. Sense of position and passive movement, also coordination are normal. The pupils are equal in size, regular in outline and react promptly to light, consensual and accommodation reflexes. There exists a divergent squint of left eye; otherwise, extrinsic muscles of the eye are normal. The upper lids are normal, as are also the masticatory, facial, phonation and articulatory groups of muscles. The muscular develop-



Figs. 1-4. Patient with Adiposis Dolorosa.

ment and tonus are good. The gait is slow, waddling and awkward, due to an increase of 118 pounds above her former weight and the direct interference with the act of walking by the fatty tissue. There are no abnormal muscular contractions. The abdominal reflex is absent. Other superficial reflexes are all normal. The knee jerks are equally and moderately diminished, organic reflexes are intact and convulsions are denied.

Since admission, the patient has been quiet and co-operating well, except on one occasion when in reaction to hallucinations of hearing, she became noisy and was resistive for a short time. There are no peculiarities of dress and, with the exception of the one noisy spell, there has been no marked conduct disorder. The patient presents the facial appearance of one suffering with uneasy, anxious depression. She distrusts those about her, including the physician and sits apart from the other patients having little in common with them. She complies with requests, but does so slowly, with distrust, and prefers not to be bothered by those about her. Her sleep is poor, accompanied by many vivid, depressing dreams and is frequently interrupted by pain in thighs, hips and gluteal regions. Her mood, one of anxious depression accompanied by irritability, has not changed since under observation. Since a little girl, she has heard her father's and mother's voices in dreams. Recently, since she went to Iowa, she heard during the day voices of unknown people accusing her and stated: "I have nothing but enemies." She knows there is punishment in store for her and says: "There is someone that wants me out of the way." "I had friends, but they turned on me." "I have been in pain for years and there have been years that I have never smiled or laughed." "You cannot help being suspicious when they talk right to your face." "They talk around my bed at night." Recently, she has come to the conclusion that her physical illness is caused by a clairvoyant medium whom she met at a seance many years before her increase in weight began. While she feels that people she never met know much about her and look at her in a significant way as if her reputation preceded her coming, she is unable to explain it. The patient is oriented, but her memory for past events, particularly for dates and details, is poor. She does not know the year of her birth nor her exact age. She remembers the year, but not the month and day of the month of her marriage. Her memory for recent dates is also poor concerning details. Her general knowledge is limited, her calculation very poor, and she does not read nor write. She does not think there is anything wrong with her mind—then adds: "But you know I am awful sick. My head hurts and I cannot sit still."

Concluding, permit me to state that while her poor memory, retention and general knowledge could be caused by organic brain disease, the history as obtained from patient, shows that there has been no decided change in these faculties, nor has there been any change in her efficiency other than what could be accounted for by her physical disability. I think that most of her mental symptoms can be accounted for on

the basis of an emotional oscillation in a person of limited intelligence and that her psychosis could be classified as a period of depression in an intellectually deficient individual.

I am indebted to Dr. Clara B. Hayes of the Peoria State Hospital for assistance in the examination of this patient.

BIBLIOGRAPHY.

1. Univ. Med. Mag., Dec., 1888.
2. Am. Jour., Med. Sc., May, 1909.
3. J. A. M. A., LV. Mo. 16.
4. Olsner: Mod. Med., VI.
5. Am. Jour. Med. Sc., March, 1910.
6. Am. Jour. Med. Sc., 1908, CXXXV, 325.
7. Wien Med. Woch., 1908, No. 49.
8. St. Thomas Hosp. Reports, 1883, XIII, 287.
9. Policlinic Rome, June, 1912, XIX, No. 26.
10. Bel. klin. Woch., July, 1913, No. 29.

AMEBIC DYSENTERY.*

JOHN W. MCGUIRE, M. D.

CHICAGO.

Definition.—Amebic dysentery, also known as amebic colitis, amebic enteritis, and amebiasis, is an infectious disease of the intestine. It may be either acute or chronic, and it is characterized by intermittent attacks of diarrhea and constipation, abdominal pain, tenesmus, the presence of pathogenic amebæ and usually blood and mucus in the feces, and occasionally abscesses in the liver and other parts of the body. The amebæ enter the body with food and water causing colitis, rectitis and enteritis.

Distribution.—Amebiasis was formerly regarded as only a tropical disease, but more recent investigation shows that it is a surprisingly widespread infection, although it is more severe and more frequent in the tropical and sub-tropical climates. It seems to be purely endemic in form.

In 1875 Lösch reported a case of amebic dysentery at Petrograd, and later Juergens made note of one in Berlin, and Caussade and Joltrain one in Paris. In fact, Kartulis stated in 1906 that Scandinavia, Great Britain, Spain and Portugal were the only European countries from which no report of amebic dysentery had come. Since then, England has had several sporadic cases.

In a recent number of the Journal A. M. A., Dr. Sanford, of Rochester, Minn., gives some interesting statistics about amebiasis in our own country. He says that it is rather common in Maryland, which, of course, is in the zone where it is supposed to occur most frequently. However, sporadic cases occur in the northern States. In 1902 Dock reported a case of typical amebic dysentery in a patient who had never been away

*Read before Englewood Branch, Chicago Medical Society, Jan 2, 1917.

from Michigan; at the same time Walsh reported 12 cases which had never been outside of New York, and Tuttle called attention to several who had never been more than fifty miles south of New York city, and fifteen who had always lived north of 37 degrees of latitude.

For several years at the Mayo clinics, Drs. Sistrunk, Giffin and Sanford examined the stools of patients for amebæ. Out of 5,000 examinations there were 819 persons from the northern states infected; 284 of these having *Entameba coli*, the harmless form, and 535 having *Entameba histolytica*, the pathogenic form. The majority of these people became infected in the state in which they lived, and all in the northern portions of the temperate zone.

The question of carriers then comes up. Since the disease is more prevalent towards the end of the dry and beginning of the wet season, in the tropics, and since many of the above cases were from rural districts where people from infected parts rarely go, but where small ponds, shallow wells, streams and marshes abound, the infection seems to bear a close relation to contaminated water supply. Another source of infection is the people who are immune carriers, without ever having had the disease. Fresh fruits and vegetables grown on polluted soil could also easily pass on the amebæ in cyst form. The latest suspect is the common rat, that notorious germ bearer, who suffers from infection of the disease. All of these sources are doubtful and until further and more definite investigations have been made, the best prophylactic measures to be adopted in suspected areas are the boiling of all drinking water, and the avoidance of fresh fruits and vegetables grown in the ground.

History.—While dysentery was mentioned as a specific disease in the earliest papyrus records, the amebic variety was not differentiated until 1859, when Lambl called attention to the presence of rhizopoda in the intestinal mucus of a child who had died from enteritis. In 1875, Lösch found amebæ in the dejecta during life, and in the intestinal lesions at autopsy, of a case of chronic dysentery. He described the parasite and was able to infect dogs with the patient's feces, causing ulceration of the intestine. This work was confirmed by Koch, Gaffky, Kartulis, Osler, Councilman, Lafleur and many others. Celli and Fiocca were the first to study the amebæ systematically and to cultivate them on

artificial media. Councilman and Lafleur said there were two varieties of amebæ:

(a) *Ameba coli*—a harmless commensal.

(b) *Ameba dysenteriae*—a pathogenic organism, the cause of dysentery.

This was confirmed by Stiles, but Schaudinn reviewed the subject and grouped all amebæ as follows:

I. *Ameba coli* rhizopodia, with 3 species:

- (1) *Entameba coli*;
- (2) *Entameba histolytica*;
- (3) *Entameba tetragena*.

ETIOLOGY.

Entameba Coli (Lösch, 1875).—*E. coli* seems to be a harmless commensal in the large intestine of man and many domestic and wild animals. It may be abundant when the intestinal reaction is either neutral or alkaline. Dr. Craig, captain of the Medical Corps of the United States Army, tells of some of his examinations. Stool examinations were made of 200 men in the Hospital Corps, all of whom were robust and healthy and had never had dysentery. The result was that 65 per cent of them showed the presence of *E. coli* in varying numbers. In 1906, Captain Veder, of the Army Corps, examined the feces of 50 American soldiers and 50 Filipino Scouts. Fifty per cent of the Americans and 75 per cent of the Filipinos had *E. coli*. In San Francisco and Manila, the examination of 307 healthy Americans showed *E. coli* in the feces of 176, with no signs of dysentery even after three years of close observation.

Dr. MacNeal, of the New York Post-graduate School, says that although *E. coli* appears harmless, there is a possibility that it may contribute to the aggravation of pathological conditions in the digestive tract. However, its common occurrence in healthy men speaks against its possessing any specific or powerful pathogenic property.

McFarland, of Philadelphia, describes *E. coli* as follows:

"The organism usually measures between 10 and 20 micron in diameter, when free, and from 15 to 50 micron when encysted. It is spheroidal when free, and it is difficult to differentiate the ecto- and endoplasms. The ameboid movements are sluggish, with short, broad and blunt pseudopodia, on which the clear ectoplasm becomes visible when they are protruded. The organism has

a grayish color, finely granular cytoplasm, and usually only one vacuole. The nucleus is fairly well defined, spherical, and contains several nucleoli, in addition to chromatin. When the organism is stained with polychrome methylene-blue, the ectoplasm stains blue, the endoplasm violet and the nucleus red.

E. coli reproduces by simple fission and by schizogeny. In its sporulation, the organism first encysts, then the nucleus divides into eight segments (rarely ten or sixteen), and eventually the cyst breaks up into eight new organisms. The fully developed cyst with eight nuclei is about 15 micron in diameter and is characteristic of this species.

Entameba Histolytica (Schaudinn, 1903)—McFarland says of this organism:

It is the organism seen and identified by Lösch, Koch, Kartulis, Councilman and Lafleur and accepted as the cause of amebic dysentery. It is usually present only in the intestines of those with dysentery and there are usually great numbers so that its discovery in the evacuations is easy.

Of its morphology he says:

It is larger than *E. coli*, varying in diameter up to 50 micron. It is spheroidal when at rest but very irregular when in action. The ameboid movements are active and the pseudopodia are larger and more numerous than in other species. The protoplasm has a greenish or yellowish color and there is usually a distinct difference between the ecto- and endoplasms, the former being hyaline, and the latter granular. The nucleus is small and rather indistinct and there are numerous vacuoles. A freshly evacuated specimen usually contains many red blood cells upon which the organism seems to feed. When stained with polychrome methylene-blue, the ectoplasm stains more deeply than the endoplasm. The nucleus contains relatively little chromatin.

E. histolytica reproduces by binary fission, after karyokinesis—indirect cell division which begins in the chromatin of the nucleus—and by encystment and sporulation. The sporulation is quite different than that of *E. coli* and only takes place when conditions are unfavorable to continued division. It is accomplished by a peculiar nuclear budding in which chromatin granules, or chromidia, are pushed out from the nucleus toward the ectoplasm, where they develop into new nuclei, about which the cytoplasm collects until a distinct bud is formed and cast off as a small but definite new organism—a spore or bud. These, when separated, are round or oval and measure 3 to 6 micron in diameter and are surrounded by a yellowish envelope which resists drying and the penetration of stains and chemicals.

Entameba Tetragena (Viercek, 1906)—MacNeal describes *E. tetragena* as follows:

It is 8 to 60 micron in diameter, and the ectoplasm

is distinctly differentiated from the endoplasm, even when the organism is motionless. The lobose pseudopodia are composed only of the stiff, highly refractive ectoplasm. The endoplasm contains food material, bacteria, cell fragments, and red blood cells. The nucleus is distinctly visible in the living ameba, is spherical in shape, and is surrounded by a thick, doubly contoured nuclear membrane. In this species, reproduction is chiefly by fission, but cysts are formed when the patient begins to convalesce. The mature cyst has four nuclei and frequently large masses of chromidial substance. It is regarded as a causal agent in amebic dysentery, for either active or vegetative cells, or disintegrating forms are found in the stools of patients with dysentery.

In discussing the relationship of *E. histolytica* and *E. tetragena*, McFarland says:

In recent investigation (1910 to 1915) by Craig on this subject, he concludes that Schaudinn was in error about the life cycle of *E. histolytica* and what he supposed to be its sole method of reproduction is only that means which preponderates during the period of its greatest activity. That when the acme of the dysentery is passed and repair sets in, then the mode of reproduction characteristic of *E. tetragena* is seen. It would seem then that the two forms are the same, and according to the best information available at present, there is only one pathogenic ameba—*E. histolytica*.

The same conclusion was reached by Darling. The non-pathogenicity of *E. coli* is now less certain than before. In a recent paper by Williams and Calkins they close with the statement that it is unwise for anyone at present to be too positive in regard to the distinctive features of any of the entameba group, for there may be in man three or more, or two (as Hartmann, Whitman, Walker and Craig now think), or possibly only one species of ameba manifesting different forms under different conditions.

McFarland told some interesting facts about how pure cultures of amebæ are obtained for experimentation. First the low power is turned on an ordinary amebic culture, which also contains bacteria and more or less foreign material. A single desirable ameba is chosen and the high power turned on it, then the lens is lowered until it touches the organism. When the lens is raised again, the ameba will probably adhere to it and can easily be transplanted on a dish of sterile agar with a few red blood cells for food. The low power will show whether the attempt has been successful or not, and a pure culture will probably grow.

Pathology.—It seems that *E. histolytica* must produce some metabolic product that exerts an

enzymic action upon the human tissues, thus accounting for the destructive nature of the lesions. But this has not yet been proved.

The amebic cysts, containing spores, enter the body with food and water and pass on through the stomach and small intestine into the large bowel, where the lesions are found chiefly in the rectum and just below the ileocecal valve in mild cases, or along the entire length in severe cases. One characteristic of amebic dysentery is abscess of the liver, one of its sequelæ, which occurs in nearly 25 per cent of the cases, but almost never in bacillary dysentery.

The distinct and somewhat rigid ectoplasm of *entameba histolytica* is supposed to make it easy for the organisms, which you remember are actively motile, to penetrate between the epithelial cells of the intestinal mucosa to the lymph spaces of the submucosa below. Here the amebæ multiply rapidly and by the enzymic action of their metabolic products, cause necrosis of the supra-adjacent tissues with resulting exfoliation and the production of round, oval or ragged ulcers with markedly infiltrated and undermined edges. As the amebæ increase and fill up the lymphatics and as bacteria add their effects to those occasioned by the amebæ, the ulcerations increase in extent and depth until the mucosa and submucosa may be almost entirely destroyed, leaving the entire length of the large intestine denuded except for occasional islands of much congested, inflamed and partly necrotic mucous membrane. The diseased intestinal wall is the seat of much congestion and is much thickened. The most characteristic lesions of the early stages of amebic dysentery are the projection of nodules, having a blackish point on the summit, from the folds of the mucous membrane into the intestinal lumen. When incised, these nodules are found to contain a yellowish or greenish yellow viscid fluid of a gelatinous consistency, which is composed, when seen under the microscope, of degenerated cellular material, mucus, and living amebæ. In the next stage the black points on the elevations are cast off and the necrosis of the mucus membrane covering forms a small ulcer, whose base becomes inflamed and its edges ragged. These ulcers deepen until they expose or even perforate the muscular and peritoneal coats, causing, of course, peritonitis and abscesses, according to the position of the perforation. The

invasion of the mucous membrane laterally leads to the formation of sinuses beneath it, connecting neighboring ulcers. In very severe cases, large irregular ulcers form channels in the mucosa, over the sinuses, and the whole surface of the intestine becomes covered with partially detached shreds of necrotic membrane. This "buffalo skin" and the sinuses are peculiar to the amebic form of dysentery only. A typical ulcer, as Craig describes it, has edges raised from the surface of the mucosa and is much undermined, giving a shaggy appearance because of the necrotic tissue. The small ones are usually round or oval and the large ones are irregular. The younger ulcers have blood, pus and necrotic material on the floors, but the older ones have smooth floors.

Sequelæ.—Amebæ not only appear in great numbers in the ulcers and the lymphatics but also enter the capillaries, through which they are carried to the larger vessels and eventually to the liver, where they continue to increase and give rise to hepatic abscess. The first expression of their injury to the liver parenchyma is shown by focal necroses. In each of these, the organisms multiply and the lesion extends until neighboring necroses are united and eventuate in great collections of colligated necrotic material which may involve the whole thickness of the organ. There is usually only one large abscess but there may be several small ones or the liver may be riddled by hundreds of minute abscesses. Few amebæ are found in the pinkish necrotic substance contained in the abscesses but great numbers are found in the semi-necrotic walls. Sometimes the liver becomes adherent to the diaphragm and if this is perforated adhesion of the lung may result, the pinkish material being expectorated.

When the ulcers heal, by the formation of new connective tissue, a distinct scar is formed which is often black in color, due to the action of the sulfuretted hydrogen of the bowel on the iron of the blood. When this cicatrization takes place, the lumen of the bowel may be constricted, causing stenosis and obstinate constipation. Peritonitic adhesions are also very common, binding the large bowel to the viscera or the walls of the abdomen and pelvis. Sometimes when an infection is unusually severe, the bowel becomes gangrenous. Hemorrhage is very common in dysentery.

Morbid Anatomy.—Usually the body of a person dying of amebic dysentery is emaciated and the abdomen is sunken. Rigor mortis begins and passes off early and decomposition sets in quickly. When the abdomen is opened, the tissues are dry, and have a peculiar odor. The omentum may be normal or congested and may or may not be adherent. The large intestine is generally contracted and thickened, but it may be gangrenous or perforated with purulent peritonitis. The mesocolon may be congested and edematous or thin and fibrous. Adhesions of various organs is common with inflammation of the mucosa. The mesocolic glands are usually enlarged and hyperemic. The ulcerations formerly described are always to be found. The small intestine may show small, bright red nodules and the Peyer's patches may be enlarged, the appendix, the pancreas, and the spleen are usually normal, but they may be ulcerated, and the kidneys often show parenchymatous inflammation. The liver and the heart may become fatty, while the lungs may undergo brown atrophy.

SYMPTOMATOLOGY.

1. *Acute Type.*—The onset is usually abrupt but occasionally it may be preceded for a few days by a slight diarrhea, alternating with constipation. Pain is felt in the lower abdomen and may be very severe, accompanied by tenesmus. The motions rarely exceed 30 a day and they contain blood, mucus, and occasionally greenish material which proves to be leucocytes, mucus, Charcot-Leyden crystals, amebæ, bacteria, and shreds of tissue when seen under the microscope. The tongue is moist and often coated with a white fur, and usually there is anorexia, accompanied by nausea, vomiting and general indigestion. Other symptoms are sunken abdomen, tenderness on pressure of large bowel, fewer red blood cells in blood, diminution of the urine, with casts and albumin, and fever. When the temperature falls to normal and pain and tenderness abate, these may be favorable signs or may be a prelude to gangrenous complication or hemorrhage. If the patient dies, it is usually within a week or ten days from the onset of the disease, and it is generally caused by exhaustion, more rarely perforation or hemorrhage.

2. *Chronic Type.*—Chronic dysentery may follow an acute attack or may start insidiously.

The symptoms are those of diarrhea, associated at times with abdominal pain and the passage of feculent motions mixed with mucus and blood, alternated with periods of constipation. If the disease becomes aggravated in any way there may be 12 to 14 motions a day, most frequently at night, with small grayish masses, containing amebæ, in the stools. Gangrene may set in at any time, or the disease may persist for many years, causing the patient to slowly emaciate.

3. *Latent Types.*—In latent types there are no dysenteric symptoms but amebæ are present in the feces and ulcers are found in the postmortems. The latent condition is important because it can easily lead to an acute attack or a liver abscess, and these people are carriers.

4. *Mixed Types.*—Mixed infections of amebic and bacillary dysenteries are identified by numerous motions, considerable fever, nausea, vomiting and great constitutional disturbance. The motions are apt to be offensive and to contain sloughs, indicating gangrenous complication. Exhaustion may come early and the patient may die comatose, but rarely improvement sets in and chronic dysentery is established.

TREATMENT.

Castellani and Chalmers recommend the following treatment:

The patient should be placed at rest in bed, first, then should be given either a small enema of 40 minims of laudanum in 1 ounce of mucilage of starch or an injection of morphinæ ($\frac{1}{4}$ grain), or codiene ($\frac{1}{4}$ grain) suppository to relieve the severe griping and straining. Next the bowels should be swept clean by a dose of castor oil (3 iv. to 3 vi.), with or without a few minims of liquor opii sedativus, or a few doses of saline may be given during the first 24 hours. After the castor oil has acted, or simultaneously, the emetin treatment should be begun. This consists of a hypodermic injection, three times a day for 2 or 3 days, of $\frac{1}{3}$ to $\frac{1}{2}$ grains of emetin hydrochloride dissolved in sterile normal salt solution. Emetin hydrobromide may also be used in the same dosage, but it is not quite so soluble. These drugs may be had in sterile tubes ready for injection. If emetin cannot be had, then ipecac should be given in 5 grain doses every 3 or 6 hours, or in larger doses (gr. x. to xx.) twice daily in the form of mambroids or as

pills coated with salol varnish or keratin. These varnishes do not dissolve readily in peptic juice while they do so in pancreatic juice, if the coating is not too thick. Practically, however, embroids are better in man. Martindale's method of stearin-coated pills is very good, for the nausea is often avoided without diminishing the efficiency of the ipecacuanha. Using any of the above methods nausea is usually avoided and the precautions generally observed need not be used. When the acute symptoms are gone, intestinal irrigation is useful and should be administered every other day or once or twice daily. A solution of tannic acid, 3 to 5 in 1,000, or a solution of bihydrochloride of quinine varying in strength from 1 to 5,000 to 1 in 750, is very good. Half to three pints should be slowly injected by gravity from a glass douche by a long, soft rectal tube. This injection may be preceded by a cocaine or morphine ($\frac{1}{4}$ grain) suppository introduced half an hour previously. In gangrenous dysentery, the only chance to save the patient's life is to perform an operation of appendicostomy and to irrigate the lower bowel with quinine solution 1 in 1,000 or collargel 1 to 500. Ipecac or emetin should be continued in small doses to prevent either a relapse or a hepatic abscess, if possible.

7303 Evans Ave.

* * *

MANILA CITY MORGUE.
COLLEGE OF MEDICINE AND SURGERY.
NECROPSY RECORD.

Morgue No. 5136; name, Alberto Leaño; Necropsy No. 4175; residence, 984 Int., 24 Singalong, Paco.; sex, male; race, Filipino; age, 12 years; whence received, Philippine General Hospital; duration of illness, about 18 days; died Sept. 24, 1:55 p. m., 1915; Necropsy held Sept. 25, 9:35 a. m., 1915; twenty hours after death, by Dr. Manlove.

Clinical diagnosis—Acute bacillary dysentery.

Anatomic diagnosis—Acute ulcerative colitic (amebic and bacillary). Acute lymphadenitis (mesenteric, lumbar, sacral and mesocolic). Some edema of heart muscle. Acute diffuse nephritis, with fatty infiltration of kidneys. Ascariasis.

C. H. MANLOVE, *Pathologist*.

Body—is that of a rather poorly nourished Filipino male child, whose age is 12, whose weight is 21.51 kilograms and whose length is 133 cm. The skin has a dark brown color. The hair is black, straight, coarse and limited to the scalp. The pupils of the eyes are contracted, the conjunctiva is pale and the cornea is clear. At the right angle of the mouth involving the right angle and an area of 4 or 5 cm.

on the right cheek the tissue has a greenish-black necrotic appearance. The mucosa of the mouth is rather pale and covered with some necrotic material, while the teeth are very carious. The superficial lymphatic glands are not palpable. Rigor mortis is present throughout the body. Suggillation is present in the dependent portions of the body.

On Section—of the body there is a small amount of subcutaneous fatty tissue. The musculature has a pale reddish color.

Abdomen—The serosa of the small intestine has a grayish color, while that of the large intestine has a dark gray color, and the entire serosa is moist. The transverse colon is adherent to the gall bladder and to the wall of the stomach. The diaphragm is located at the 4th interspace on the right and the 5th rib on the left. The abdominal viscera otherwise lie in normal relationship to each other.

Thorax—The thymus weighs 6.1 grams, it is small, soft and pinkish.

Pleural Sacs—The left pleural sac contains numerous fibrous adhesions scattered throughout the sac, while the right pleural sac is practically free from adhesions with the exception of some between the lobes, and the sac is moist but does not contain any free fluid.

Lungs—themselves weigh 310 grams, they float high in water, crepitate throughout, and their surfaces vary from a pale gray anteriorly to a bluish gray posteriorly. Section into the lungs shows a smooth, bulging, pinkish surface which is somewhat dry. The bronchi are apparently normal.

Heart—The pericardium is very pale, smooth and thin. The pericardial sac is normal in size and shape, is free from adhesions, but contains a slight excess of straw-colored fluid. The epicardium is very pale, very moist and glistening. The tissues immediately beneath it are somewhat edematous. The heart itself weighs 130 grams, is normal in size. The tricuspid valve admits three fingers and the mitral two fingers. The auricles and ventricles are apparently normal in size and shape. The endocardium is pale, smooth and thin. The musculature is quite pale, somewhat firm in consistence, and cut surface is smooth and quite moist. The blood is coagulated forming coagula of chicken-fat consistence.

Spleen—weighs 67 grams, is normal in shape, somewhat firm in consistence; its capsule is of a light blue color and smooth. Spleen cuts easily, showing a smooth reddish brown colored surface which is moist and from which a small amount of blood-tinged fluid exudes. Upon the surface the lymphoid tissue is not visible.

Adrenals—weigh 10.2 grams; they are somewhat firm in consistence and brownish in color, normal in shape and size.

Kidneys—weigh 180 grams, they appear slightly larger than normal and are surrounded with a small pad of fat, and are somewhat soft in consistence. They cut readily, upon the cut surface the pyramids are about normal in size and shape, of a brownish red color, and the surface appears smooth and com-

pact. The cortex is thickened, is of a pale color with a yellowish tint and bulges. The capsule strips with some resistance, showing a smooth surface of a pale color with a yellowish tint and marked with stellate injections.

Intestines—The serosa has been described. Upon removing the colon there are numerous adhesions along the course of the colon and the epiploicae are enlarged and vary from a pale to a pinkish color. The contents of the small intestine varies from a thick slimy brown material to a thick turbid brownish fluid in the lower ileum and entire colon. There are present numerous ascarids. The entire colon is altered throughout, its walls are considerably thickened, and when it is loosened from its adhesions to the gall bladder it tears through the entire thickness of the wall. The entire wall is rather friable and somewhat easily torn. The mucosa over the entire colon is greatly altered, the entire being riddled with ulcers, these ulcers varying in size from a few mm. to 1 and 2 cm. and they are irregular in shape. The edges are slightly overhanging, the bases are flat, blackish in color and roughened with necrotic shreds of tissue which hang from them; and the bases appear to be located in the submucosa. The mucosa which surrounds the ulcers is considerably elevated, very pale and very edematous, while the mucosa in other places is roughened by minute papillary elevations of about 2 mm. in diameter and these have a deep red color. In places a thin pseudo-membrane covers the mucosa. Small intestine: The lower 5 to 10 cm. of the small intestine is roughened by minute papillary elevations which are reddened and here the entire wall is thickened; otherwise the small intestine shows the mucosa to be pale, smooth, moist and apparently normal.

Stomach—is apparently normal.

Pancreas—is pale in color, quite firm in consistence and shows no visible change.

Mesentery—The lymphatic glands through the mesentery are enlarged, they are of a pale grayish color and the cut surface bulges showing a smooth moist pale grayish surface. The lymphatic glands in the mesocolic, lumbar and sacral regions are very much similar to those of the mesentery, all of these being enlarged.

Liver—weighs 1061 grams, it is about normal in shape, somewhat firm in consistence, the capsule has a light pale brownish color and is smooth and glistening. Liver cuts easily, showing a smooth, rather pale surface, which is somewhat bulging and quite moist, and upon which the lobules are invisible, the gall ducts and vessels showing no apparent change.

Gall Bladder—contains some thick tarry blackish bile; the mucosa and walls appear to be somewhat thickened. The common bile duct is obstructed, as no bile can be forced through it.

Urinary Bladder—is slightly contracted and contains a small amount of pale urine. The mucosa is pale and smooth throughout.

Aorta—is apparently normal.

HEMORRHOIDS, THEIR CAUSE AND TREATMENT.*

FRANKLIN A. TURNER, M. D.

Ex-President North Central Illinois Medical Association
ROCKFORD, ILL.

The most frequent pathological, the most neglected, and probably the most self-treated condition of the ano-rectal region is hemorrhoids.

I think that we will all agree that hemorrhoids are tumors or growths produced by pathological changes in the veins of the rectum and anus. There is frequently some infiltration of the surrounding tissues and usually some hypertrophy of the anal skin.

They are classified according to their location as follows: 1, internal; 2, external, and, 3, interno-external.

1. The internal are those which are covered with mucous membrane and are usually situated within the rectum, but may protrude from the anus, yet they are nevertheless of the internal variety. 2. The external are those which are covered with integument and are situated outside the external sphincter. 3. The interno-external variety is a combination of the two preceding varieties and is covered with both mucous membrane and skin.

The internal hemorrhoids may be divided into pedicled and sessile and may or may not protrude through the anus. They are also divided into varicose and capillary. The capillary variety may not appear in form of a tumor at all but merely as a circumscribed area which bleeds easily on touch. It is brighter in color than the varicose variety and in appearance somewhat resembles a raspberry. The varicose internal hemorrhoid is darker in color and is caused by a varicose condition of the veins of the superior hemorrhoidal plexus.

The external variety is divided into the integumentary, the varicose, and the thrombotic.

Pennington in the *Journal A. M. A.* for April 3, 1915, classifies piles according to their structure into: 1, those containing fluid blood; 2, those containing clotted blood; 3, those containing both fluid and clotted blood, and, 4, "skin tags" or cutaneous folds, the fleshy pile.

The thrombotic type is very painful, makes its appearance very suddenly, is of a bluish or purplish color, rounded in shape, and has the

*Read before the North Central Illinois Medical Association.

sensation to the patient of being much larger than it really is. The integumentary variety is usually the remains of the acute thrombotic variety, in which the blood clot has undergone absorption and usually consists of a sac or pouch of thickened or hypertrophied skin. The varicose variety is, as its name implies, a varicose condition of the branches of the inferior hemorrhoidal vein.

Causes.—The chief predisposing cause of hemorrhoids is the upright position of man and the absence of valves in the rectal veins which causes the weight of the column of blood to rest on the veins of the lower rectum and anus, consequently anything which will increase this pressure on the walls of the veins will, of necessity, cause enlargement and dilatation. Constipation *per se* is perhaps one of the least frequent causes of hemorrhoids, but occasionally may be one of the principal factors in their etiology, the large, hard stool pushing the blood ahead of it as it passes down through the rectum, stripping or milking the veins and causing unusual pressure in the hemorrhoidal plexus at the anal canal.

The efforts to relieve constipation by the use of cathartics and enemas are much more frequent causes of hemorrhoids than constipation itself. The irritation caused by liquid feces, or an unclean syringe tip, resulting in minute abrasions which invite the entrance of pathogenic bacteria, is a most potent factor in the cause of a number of ano-rectal diseases including hemorrhoids. Infection with pathogenic bacteria probably plays a greater role in the causation of hemorrhoids than has hitherto been supposed.

Recently, Pennington of Chicago, has done some research work along this line and he has found that the tunics and sacs of the crypts of Morgagni and diverticuli found in this region contain streptococci, staphylococci, colon bacilli, and other bacteria. He has also injected some of the various bacteria found in this region into animals and has succeeded in producing local and constitutional diseases. He states also that he is investigating the value of these diverticuli as points of focal infection and their role as causative factors in hemorrhoids, fistula, constipation, arthritis, endocarditis, and other acute and chronic local and constitutional infections.

Overeating, or anything which causes conges-

tion of the portal circulation is a causative factor in the production of hemorrhoids. Occupation plays an important role in their etiology. People who, during the hours of their occupation are continuously on their feet are much more subject to hemorrhoids than others who follow different occupations. They may also be the result of purely mechanical conditions such as the pressure caused by the pregnant uterus, and in such cases spontaneous cure sometimes follows labor.

Treatment.—The treatment of hemorrhoids is divided into palliative and radical or operative. Palliative treatment rarely if ever cures hemorrhoids permanently, but may give relief in certain cases for a longer or shorter period of time. In prolapsed internal hemorrhoids with more or less strangulation caused by the spasmodic contraction of the external sphincter, due to reflex irritation, it may be imperative, for a short time at least, to apply palliative measures in order to reduce the prolapse, and this is not always an easy thing to accomplish. An application of a 1 to 1,000 solution of adrenalin chloride may constrict the blood vessels so that the reduction may be comparatively easy. The injection of a $\frac{1}{2}$ to 1 per cent solution of quinine and urea hydrochloride into the hemorrhoids may be made with beneficial results.

Recently it has been claimed that hemorrhoids may be permanently cured by the injection of quinine and urea, and a number of proctologists have reported some very satisfactory results following this method. But as I have had no experience with it I shall not attempt to discuss it.

The ideal operation for hemorrhoids is one that will give the minimum loss of time from business and a minimum amount of post operative discomfort, and at the same time accomplish a permanent cure. The unusual amount of post-operative discomfort and the length of confinement following the Whitehead operation and the clamp and cautery have caused many of the leading proctologists to practically abandon these methods and to speak of them only to condemn them. The extraction of a tooth in case of an alveolar abscess, the excision of an infected appendix, or the drainage or removal of the gall bladder in cases of cholecystitis of pyogenic origin, or the removal of any point of focal infection are no longer debatable questions. As-

suming the theory, or even recognizing the possibility, that hemorrhoids may be points of focal infection, which are followed by acute and chronic and local and constitutional diseases, it would seem to be conservative rather than radical treatment, to advocate removal by excision in all cases of the pathological condition under consideration.

Operative Treatment Under Local Anesthesia.

—The desire to relieve pain is as old as the human race. Attempts to reach this goal by finding some drug or method that when applied locally, would relieve the pain of surgical operation, extended down through the centuries. The application of cold, which was first used as a local anesthetic about the middle of the sixteenth century, is the only method which has stood the test of time as possessing any merits up to the time of the discovery of modern anesthetics. The fat of the holy animal, the crocodile, or the dried and powdered skin of the same animal, and the stone of Memphis, which was supposed to produce local anesthesia when rubbed on the skin with vinegar, are relics of the religious and mystic ceremonies of ancient Egypt, and have passed with countless others into deserved oblivion.

The compression of nerve trunks to produce local anesthesia, although successful to a marked degree in certain cases, has been abandoned on account of the traumatism to the tissues which it often produced, and were it now in vogue would not be applicable in rectal work, owing to the anatomical relation of the parts involved.

The discovery in 1884 that cocain, when applied in a two per cent solution to the conjunctiva, made it possible to perform many operations on the eye without pain, marked an epoch in the history of local anesthesia. The great toxicity of cocain when injected into the tissues, however, has led investigators to search for a less poisonous drug for this purpose, and many have been placed on the market such as tropocain, eucain, holocain and stovain among others, until the discovery in 1904 of novocain. Novocain is the nearest approach to an ideal local anesthetic that we possess today. It is about one-seventh as toxic as cocain. When used in conjunction with adrenalin chloride solution its absorption is retarded which materially increases the duration and also the degree of anesthesia.

The method first described by Reclus for the

circumjection of the anus* is an excellent one. It requires from 75 to 125 "mils" of an 0.5 per cent solution of novocain, to each 30 "mils" of which should be added from 2 to 4 drops of a 1 to 1,000 solution of adrenalin chloride. This when properly given anesthetises the skin surrounding the anus, the external sphincter muscle, and the muco-cutaneous lining of the anal canal sufficiently to permit dilatation of the sphincter, the application of the cautery, or the excision of the hemorrhoids without pain.

Preparation of the Patient.—The patient is sent to the hospital the afternoon before the operation and in the evening is given an enema of plain water as cold as can be borne without causing chills or cramps, using not more than one pint at each injection, and this is repeated until the water returns clear. One ounce of liquid petrolatum is given and repeated three times a day throughout convalescence. The perianal region is shaved and a 1 to 20,000 moist bichloride of mercury dressing applied and left on over night. In the morning the cold enema is repeated two hours before the operation and one-half hour before the operation the patient is given a hypodermic injection of morphin sulphate gr. $\frac{1}{4}$ and atropin sulphate gr. $\frac{1}{150}$. After the local anesthetic has been injected the anal canal is cleansed with soap and water and a 3 per cent tincture of iodine is applied as an antiseptic.

The external thrombotic hemorrhoid is removed by the open method as described by Pennington; an elliptical incision long enough for the clot to be turned out is made over the pile, and after the clot is removed the edges of the wound are left to coapt without sutures. The integumentary variety is treated in the same manner by dissecting out the redundant subcutaneous tissue after the incision has been made and no sutures are applied. The after treatment consists of the application of sterile vaseline and a gauze dressing held in place by a T bandage. The wound heals rapidly and the patient may be on his feet and about in a few hours.

In the internal variety the hemorrhoid is seized at its apex with a special T forceps or an ordinary hemostat, and drawn down external to the sphincter muscle; a blunt, round, noncutting needle, threaded with No. 2 plain catgut, is inserted into the mucous membrane at the upper portion of the base of the hemorrhoid,

passed beneath the mucous membrane and around the base of the pile including the blood vessels and emerges as near the point of insertion as possible, thus including very little or no mucous membrane in the grasp of the ligature. The pile is now treated in the same manner as the external variety, that is by an elliptical incision, and dissecting out, down to within one-quarter of an inch of the ligature, the varicosity which constitutes the hemorrhoid. The after treatment in the internal variety consists in filling the anal canal and lower rectum with sterile vaseline, the insertion of a small drainage tube and the application of an external gauze dressing held in place by a T bandage. The drainage tube is removed at the end of twenty-four hours and the bowels moved with a cold water enema, after which the patient is allowed to be on his feet and walk about. In some cases it is necessary to give a hypodermic injection of morphin sulphate gr. $\frac{1}{8}$ and atropin sulphate gr. $\frac{1}{150}$ about four to six hours after the operation to control the pain; in other cases no opiate is required. The average patient leaves the hospital on the second day; occasionally one remains to the fourth day.

The advantages of this method over the former methods under general anesthesia are:

1. Patients submit to it much more readily than they will to an operation under general anesthesia.
2. A shorter period of time in the hospital with consequently less expense.
3. A much more rapid convalescence.
4. By no means the least advantage is that you have a pleased and satisfied patient.

501 Trust Building.

OUR SECRETARY.*

D. W. MILLER, M. D.,

GILMAN, ILL.

The county society is the most valuable organization to which a physician can belong. It is here he can express his views and listen to the ideas of his brother physician. It is here we become acquainted with each other and form friendships. In the state society very few ever express their views or have a chance to do so; but listen to some stranger air himself.

And while the county society is a unit of the

state society, the state society would not amount to anything if the different county societies were not kept going.

The office of secretary is the most important in the county society. There are so many qualities required in a good secretary that it would be hard to enumerate them. Some of which your present secretary has felt he lacked.

One of the first things that occurs to the secretary is how to secure attendance at the meetings. There are three things that will induce members to attend. While some may attend through a sense of duty and the desire to keep up our organization, others will attend for the pleasure of meeting our brother physicians and having a good time. Still others will attend in the hope of obtaining some thing that will help them in their work.

Having had the honor of serving the society as secretary for the past three years and turning the office over to my successor the first day of January, I would like to take this opportunity to thank the members for their co-operation during the time we have served you. However efficient the secretary is, unless the members will work with him, the society will drag. Twenty-two members of the society have read one or more papers during the three years. Thirteen of these papers have been published in the JOURNAL; all valuable contributions to medical literature. We have had eight papers from non-members.

I have felt when the meetings were not as well attended as we expected, that the program did not appeal to them. It is so easy for a member to have an excuse not to attend a meeting unless something appeals to him very strongly on the program. He sometimes has a confinement case that is due or he is afraid something will happen while he is away and his competitor will get one of his cases. I think it is patent to all that the physicians who have made the greatest success in the practice of medicine and have the largest practice on the surest foundation are the physicians who are the most constant attendants at the society meetings.

We know there are some who have a meteoric existence who take no interest in the work of their brother physicians.

While some of the meetings were poorly attended others were well attended, bringing the average attendance up to about eighteen.

*Read before the Iroquois-Ford Medical Society, Dec. 5, 1916.

What can we do to obtain a better attendance at our meetings and who will answer it?

Our meetings promote harmony among us and we find that the fellow we heard some one speak disparagingly about is not such a bad fellow after all. On the other hand, one who never attends society meetings becomes narrow and will have no regard for medical ethics, be as it were a medical outlaw, and not worthy of the title of physician.

Section three of chapter two of our by-laws says that at least one meeting a year shall be set apart for a discussion of the business affairs of the profession in the county with a view of adopting the best methods for the guidance of all. We have been negligent of this and for the meeting today I have placed on the program a time to consider business at a time when we have an officer of the state society with us to give us advice.

Since the state society compels us to pay in advance or be deprived of our protection in the way of the defense fund, I think a good many members do not realize that feature. We have to pay one dollar a year into the defense fund and we should have the benefit of it.

We don't dispute paying all other kinds of insurance in advance and why should we this?

Our dues at three dollars a year are very reasonable, considering what we get for it. One dollar and a half is for membership in the state society, one dollar for the defense fund and fifty cents is for the expense of the county society. Fifty cents is not enough for our society, but as we have a surplus of about one hundred dollars we can run for several years yet without raising the dues.

It would be a great help to the secretary if all members would report to the secretary the names of any new physicians who move into their vicinity, or the names of any who have moved away. This will enable the secretary in his annual report to the State Medical Society to make it more fully. The State Society requires the names of non-members as well as members. While I have derived great pleasure from doing the work of the secretary, it affords me some satisfaction to turn over the office to a more competent successor. We think it is to the advantage to change secretaries occasionally, as a new man will have something new to interest the members.

SOME FORMS OF INSANITY MOST FREQUENTLY MET BY PHYSICIANS.*

C. H. ANDERSON, M. D.,

MCLEANSBORO, ILL.

The writer will not attempt in this brief article to give a definition of that elusive mental condition usually known as insanity for no definition so far formulated has been sufficiently elastic to cover all its types and forms.

Psychiatrists and medico-legal authorities for decades have vied with each other in attempting to construct a definition that will be sufficiently comprehensive to include all forms of mental aberration, but no matter how carefully constructed all definitions so far stated have been incomplete and show conclusively that the fundamental features of the condition known as insanity are imperfectly understood.

The judiciary, throughout the long discussion of medico-legal questions, has been shackled with the incorrect idea that an individual to be insane must be violent in action and his mental state adorned with delusions, hallucinations and illusions in thought. Psychiatrists have to the contrary contended that any variation from the normal standard of mental action constitutes insanity.

Admitting that no perfect definition of insanity has been given we can not be surprised that no scientific classification of the forms of insanity has been proposed.

The great Kraepelin by one stroke of the pen has rendered the terms mania, melancholia and circular insanity obsolete and no recognized authority will now dare use them in a scientific treatise on the subject.

Kraepelin's researches in the field of psychiatry have opened to the world vast store houses of knowledge that have not been dreamed of and have placed the science on a basis that permits as complete a knowledge of this branch of science as any other department of medicine.

This field is large and offers great possibilities for those who have a natural turn for investigations.

The writer asks his hearers not to pass judgment too quickly on the truth of the statement that as many people in this world are ailing mentally as are ailing physically. But few people whom you meet are perfectly sound physically,

*Read before the Jefferson County Medical Society, Nov 24, 1910.

so but few people if measured by a true standard of sanity are found to be mentally sound.

Mental derangement is not usually recognized until the disturbance becomes so great that the individual is completely incapacitated for maintaining his or her proper place in the social realm.

As the science of psychiatry becomes more exact the alienist is enabled to discover mental defects in individuals that had hitherto escaped notice.

To prevent the needless extension of this paper we will proceed to describe some of the salient features of the forms of insanity most frequently met by physicians in the routine of his daily practice.

As has previously been stated, the classification used will be that proposed by Kraepelin and now adopted by all modern writers on psychiatry.

General paresis is a form of insanity that is most frequently met in persons giving a history of syphilis. It is characterized by a distinct group of physical symptoms as well as mental.

The disease in its incipency is characterized by symptoms of defective intelligence, lack of judgment, memory defects and moral obtuseness. We usually find a previously respected father of a family, occupying an enviable social position, become, at the height of his career, an ardent worshipper at the shrine of Venus and Bacchus. Friends and relatives see nothing in these actions but the outcropping of the original sin and are powerless to check the career of vice and drunkenness that their erstwhile respected relative had entered. How many heart-aches and pains of anguish could be spared the wife and other relatives if the family physician could recognize in these occurrences the onset of an incurable mental disease.

For convenience of description the disease has been divided into three stages. The Argyll-Robertson pupil is one of the most frequent signs of the first stage. Earlier still than the development of the Argyll-Robertson pupil will be noticed a loss of the sympathetic and consensual reflexes.

The reflexes of the body, and most usually the patellar reflex will become disturbed. Most frequently these reflexes are exaggerated, but may be inhibited. This disturbance may be unilateral or bilateral. The mental symptoms of this stage

show a gradual but progressive dementia. The grandiose parietic is obsessed with great wealth. Not content with possessing a few paltry thousands he reckons his fortune by the millions. He becomes lavish in the expenditures of his money, purchasing many needless things. A fortune may in this way be dissipated in a short time. The depressed parietic may have caused the death of many people. The hypochondriacal parietic has no stomach, no bowels, no brain and is dead though able to walk and talk. The delusions are due to and characteristic of an impaired intellect. Speech defects are noticed and a tremor of the tongue and fingers, when extended, and of the muscles of the face develop.

In the second stage the tremors become more marked, the Romberg sign develops, the walk becomes ataxic and epileptiform seizures begin. These epileptiform seizures develop into apoplectiform seizures, but the resulting paralysis is not permanent. Toward the close of this period the tremor becomes more extensive, the speech becomes slow and defective and the handwriting becomes cramped and irregular. The memory utterly fails and the signs of dementia become more marked.

In the third stage the physical symptoms become more marked, the tremor more constant and the ataxia so marked that walking becomes dangerous, if not difficult. The patient often ceases to lead a mental life, but only leads a vegetative existence. The patient often becomes bed-ridden and may lose both the anal and vesicular reflexes. Speech becomes a mass of stammering, stumbling and incoherent sounds in which now and then a word may be spoken.

Another type of insanity frequently met is dementia praecox. As its name implies, this disease usually develops between the ages of 14 and 20 years. These patients become cold, passive and disinterested in their surroundings. They rarely express a wish, do not react to their surroundings, are well oriented as to time, place and persons, but memory is faultless and shows up well in an examination of their intelligence.

These patients sit for hours without interest in the events transpiring about them—will not resent insult nor will they show adequate affective reaction. If called an obscene name or told of the death of a near and dear relative only casual interest will be shown. He sits cold and passive

without so much as moving an eyelash. These patients usually show a failure of voluntary attention and a general lack of interest. In the same way they show a marked emotional deterioration and a poverty of thought. They also show a deprivation of thought and a lengthened reaction time. The complex indicators of this form of insanity are stereotypies, speech preservations and neologisms.

Probably the class of insane cases of most interest to the physician is the manic-depressive group.

In former classifications all the excited and exalted cases were included under the designation of mania while the depressed cases were called melancholia.

Kraepelin came forward with the key to the mystery and demonstrated that almost all cases of a manic type showed melancholia symptoms at times and cases of melancholia showed symptoms of mania at intervals.

This fact proved that the condition known as mania and melancholia were different phases of the same disease. To this extensive group of cases he gave the name manic-depressive. In these cases the manic phase alternates with more or less regularity with the melancholic phase. The manic phase is characterized by flights of ideas, pressure of activity and emotional excitement.

The flight of ideas is shown by the rapid transition of thought from one subject to another before the final goal in thought is reached.

The play of ideas is so rapid that the full thought can not be expressed in words; therefore the sentences are broken and not much more than a jumble of words. Pressure of activity is shown by a restless state that will not permit the patient to sit or stand long in one position. These changes are so rapid that no task undertaken can be brought to a conclusion because the actions, like the thoughts, rapidly change from one subject to another. Emotional excitement is shown by undue excitement, usually of a pleasant nature.

The patient will jump about, dance, sing, utter extraordinary sounds and at all times manifest a gleeful mood. They often manifest bizarre delusions of a fantastic nature.

They often count their money by the billions and by the magic of a word or gesture nature is

transformed into a beautiful garden, extensive gold mines are created or thriving cities are built. They often believe that they own vast fleets of ships sailing the seas laden with gold and precious stones.

They readily bestow on others vast wealth or even worlds. In this condition the flight of ideas is so great as to amount almost to a complete incoherence and the pressure of activity so striking as to give the impression of muscular coordination.

The depressive stage of manic-depressive insanity likewise manifests itself by three cardinal symptoms, each of which is a counterpart of the opposing symptom of the manic phase. These symptoms are difficulty of thinking, psychomotor retardation and emotional depression.

These symptoms, like the manic set, may manifest themselves in any degree of severity. These patients move slowly, think slowly, react to environment slowly, often speak only in a whisper, and often answer questions in monosyllables. They sit about with folded hands doing nothing, they are incapable of any effort, for reading even becomes laborious. They sit with a downcast countenance, depicting mental anguish in their faces. This mental anguish is usually due to a train of self accusatory delusions. The patients often think themselves responsible for all the sin, the anguish and the woes of the world; they are responsible for all the wickedness and privation in the world and they have committed some great sin and are forever lost. Or they may be obsessed with hypochondriacal ideas; they think they have some incurable disease, that their internal organs are dead or removed and that something dreadful has happened to them.

Peculiar sensations about the body often lead to ideas of disaggregation of the personality. For example, the patient may go to the looking glass and aver that their eyes look like cats' eyes and are cats' eyes. These often lead to ideas of a transformation of personality or a belief that another being has taken possession of them. Hallucinations may occur, but consciousness remains clear. In some cases a condition of depressive stupor occurs in which the patient cannot be induced to speak. He may lie in bed for days in a completely inactive state and take no nourishment except when forcibly fed.

Another extensive group of cases are classified under the name paranoia.

A fundamental feature characterizing this important group is that the mental impairment is not equally diffused over the entire mental field, hence they have been in the past classified under the term monomania by early writers.

Paranoiacs often appear bright, alert and mentally competent on all points except one. Paranoia has more to do with the delusional system than any other type. For the purpose of description only the disease has been divided into three stages, namely, first, the hypochondriacal, or stage of subjective analysis; second, the stage of persecution; third, the stage of transformation of personality.

In the first stage the patient becomes non-communicative and wrapped up in his own thoughts. Unusual feelings occur, headaches, dizziness, weakness, insomnia and nervousness develop. He can not understand these sensations, but continually worries about hypochondriacal ideas. With this condition is associated a marked depression. He soon begins to notice that people act differently towards him, when he goes into a room someone goes out, people spit when they pass him or people standing here and there in groups are talking about him. He imagines people are making disparaging remarks about him. He imagines that everything occurring about him has some reference to him. These ideas are called ideas of reference. This condition grows progressively worse, the ideas are not corrected and because the patient keeps himself apart from others fails to give acts and circumstances their proper coloring.

The second stage is characterized by delusions of persecution which are usually explained on the theory that some malign influence is operating against them. During this stage hallucinations of hearing develop. These patients hear distinct voices making disparaging remarks about them or saying grossly insulting things to them. From this time on the delusions of persecution occupy the entire field of mental activity. The malign influences are recognized as organized efforts on the part of secret societies, perhaps the Masons, the Catholics or some political party. The agents of these societies are ever near him, trailing him from place to place. They poison his food and water, inject poisonous gases into his lungs or

send electric currents through his body. These organizations seek in many ways to take his life.

Soon a new system of delusions develop—delusions of explanation. The patient now flees from place to place, but everywhere he goes the ever-present persecutors are there. Finding his efforts to escape his tormentors futile, he constructs many ingenious devices to escape them. The keyhole and cracks about the door are stopped with paper. Desperation after a while seizes him and he turns upon his supposed enemies and some of the worst deeds of the criminal catalogue are committed.

After a while he develops delusions of self-importance. He believes that these gigantic schemes for his destruction would not be formed were he not a very extraordinary person. He then arrives at the conclusion that he is the pope, the son or some reigning monarch or even Jesus Christ.

In proof of these ideas of self-importance he delves into his childhood days and attaches a mysterious importance to trivial occurrences in the early period of life. He denies that the man and woman he formerly called father and mother were related to him, because he was a descendant of either royalty or divinity.

The transformation of personality now becomes complete. The patient lives, moves and has his being in a higher atmosphere than the mass of people live. These cases usually terminate in a final state of mental enfeeblement.

PYELITIS TREATED SUCCESSFULLY WITH SILVOL.*

J. C. R. WETTSTEIN, M. D.,

Urologist to St. Anthony's Hospital.

EFFINGHAM, ILL.

The clinical picture of pyelitis has, during the last year, become better recognized and appreciated. Before ureteral catheterization was perfected a definite recognition of it was impossible. Lenhartz, as a result of brilliant original work, was the first to establish the typical "fever curve" and to describe the clear, sharply outlined clinical picture of pyelitis.

Pyelitis is always the result of infection. It pursues either an acute course with a typical fever curve (abrupt onset, continuous high fever,

*Read by title before annual meeting, Effingham County Medical Society, Effingham, Ill., Oct. 9, 1916.

(falling by crisis or short lysis) or a chronic course.

The progress of the disease does not depend entirely upon the mode of infection, nor upon the bacteria present, or of their greater or lesser toxicity, but also upon mechanical considerations, i. e., whether or not the disease products find an outlet with difficulty or facility. Misplaced insertion of the ureters in the kidney pelvis, valve-like formations, adhesions, etc., all play a role and give to each case its note of individuality.

Scheidemantel mentions loin pains, kidney pressure pain, nycturia, bacteriuria and pyuria as important diagnostic symptoms of pyelitis.

The loin pains in the acute cases are very violent and radiate to the abdomen and are also usually present in chronic forms. However, they are not diagnostic and are not to be distinguished from those of renal stone, gouty kidney, etc.

The so-called kidney-pressure pain is always ascertainable by bi-manual palpation. It should more correctly be called kidney pelvis-pressure pain because it is the pelvis of the kidney which reacts to tension and increased pressure. From a differential diagnosis standpoint it is of little value, for the same pain occurs in other diseases of the kidney.

Nycturia is usually present in acute and in febrile relapses of chronic cases. In one case running a chronic course I found the reverse of the above true, there being no nocturnal evacuation of the bladder or at the most only once. Nycturia is not constant in chronic pyelitis unless there is some prostatic involvement. Of course in the chronic cases all the symptoms or irritation are much lighter.

Concerning the bladder, it is possible it may remain healthy in acute cases, but it is always drawn into the condition in chronic forms. In all literature at my disposal I have never seen a report of a chronic case in which the bladder remained free from pathological changes.

I wish to emphasize here that especially in pyelitis, parenchymatous cystitis is proportionately of frequent observation. This form, which could well be designated as "pyelitic irritable bladder," gives rise to a very tormenting and painful condition. The micturition is frequent, urgent and accompanied and followed by an attack of pain. The bladder is extremely sensitive and does not bear irrigation with the ordinary

solutions. I believe that most cases of so-called "cystitis dolorosa," provided they are not of a tuberculous or carcinomatous etiology, have their explanation in an old pyelitis.

The pelvis of the kidney, which in the adult under healthy conditions can contain 8 to 10 cc. of fluid without pain resulting therefrom, does not need to be enlarged in pyelitis. However, if the discharge is obstructed the formation of a large sac can take place. It was formerly believed that when a large tumor was present in pyelitis the kidney was also involved. This I do not think is so, due to the fact that in some cases in which large pus cavities were present the kidneys remained unaffected. With careful management and after evacuation by catheter, these cavities recover. (Fritz.)

A large number of cases of pyelitis occur during pregnancy. It is frequently overlooked as long as it does not cause any annoyance, and only brings the patient to the physician when the growing uterus begins to obstruct the discharge of the pus laden urine.

The most important information for the diagnosis of pyelitis is given by the examination of the urine. The albumin content in pure pyelitis is always several decigrams per liter and is the result of broken down pus cells. Casts, or red blood corpuscles, are not present. If red blood corpuscles be constantly present in conjunction with casts, they denote either a pyelonephritic process, or (aside from the rare bacillus proteus infection) stone in the kidney, tuberculosis or tumor.

For the diagnosis of pyelitis all the above information possesses a preliminary character only. The diagnosis can be established only with certainty by cystoscopy, kidney catheterization, and urinalysis. In every chronic case, ureter-cystoscopy is absolutely demanded.

In regard to the route of infection we ordinarily differentiate between that of a descending and that of the ascending form: the descending form originates directly through the blood stream (hematogenous infection) and the ascending infection through the lymphatics. The hematogenous infection is, in general, well understood; the germs reach the kidney through the blood, are filtered through the kidney tissue, which results in an irritation to the renal substance, and finally reach the pelvis, where they lodge.

Treatment: I shall not go into the routine treatment of pyelitis, but wish to state my results with the use of Silvol, the new proteid-silver compound, in this disease. I have secured excellent results with its use as an irrigation to the kidney pelvis. I begin with a 5 per cent aqueous solution; after several treatments with this strength, I increase it to 10 per cent, and finally use a 15 per cent solution. It has the advantage that, in addition to being an active germicide it is non-irritating and non-toxic. Its non-irritating properties are especially to be commended for pelvic irrigation work in pyelitis.

Pyelography: Silvol being a silver compound and having found it so non-irritating in pyelitis, I was very interested to know if it would be suitable for pyelography. In order to prove this point I determined to first do some experimental work. Therefore, I secured a dozen fresh pig kidneys and used solutions varying from 5 to 25 per cent with the following results:

Strength of Silvol—Result:

Five per cent solution; no shadow.

Ten per cent solution; very faint shadow.

Fifteen per cent solution; shadow more distinct, but not sufficient.

Twenty per cent solution; shadow distinct, but outline of pelvis of kidney not clear.

Twenty-five per cent solution; shadow clear and outline of pelvis of kidney very clear and distinct.

It is hardly necessary to comment on the above. As a result of this experimentation I now use a 25 per cent solution for pyelography in the human with excellent results. There is no pain, distress or discomfort.

The following interesting case of acute pyelitis will serve to illustrate my use of the preparation in this condition:

Case 1—Male, aged 57 years, farmer. Entered hospital June 3, 1916.

Family history: Father died at 54 from Bright's disease, sister at 50 from tuberculosis.

Present history: Chills, fever, loss of weight, frequent and painful urination, pain and soreness in left renal region.

Personal history: In good health until three or four years ago, when he suffered from an upper right quadrant attack, probably gall stones. At this time he noticed it was difficult to start urination, and that he had to get up several times during the night. His trouble continued until the present attack.

Present trouble: About seven weeks ago had a slight chill, fever, pain in left renal region, frequent

and painful urination both day and night, temperature 102 degrees to 103 degrees, extreme soreness in left renal region extending over mid line of abdomen.

Physical examination: Normal weight 160, at present 125 to 130 and appears much emaciated. Eyes negative. Teeth decayed. Tongue coated and dry. Neck and chest negative. Heart steady and regular with fair pulse volume. Abdomen flat, no masses to be felt but a fullness in upper abdomen. Liver sore and gall bladder region very resistant and tender. Right renal region moderately tender. Left renal region very tender and rigid and also on fist percussion. Tenderness along the course of left ureter and over bladder. Middle lobe of prostate moderately enlarged.

Blood: Hemoglobin 45 per cent. Red blood corpuscles 2,300,000 and their morphology was as we could expect from such an anemia. Blood pressure 60 to 100.

Urine: Upon catheterization of bladder a retention of 150 cc. Specific gravity 1,010, acid, and 1 per cent, albumin present. Microscopically nothing but pus cells could be seen; no red blood corpuscles; colon bacilli present but no tubercle bacilli.

Cystoscopy: The bladder was so completely covered with mucus and pus that it was impossible to see the mucosa. Irrigations were continued for four days, at which time the following findings were present:

The median lobe of prostate was enlarged and sensitive. The anterior and posterior urethra sensitive and inflamed. Entire bladder mucosa inflamed and trabeculated. An ulcer present at margin of left ureteral orifice, and right ureteral orifice inflamed. Each ureter was 35 inches in length and non-obstructive. However, the left was very painful and the right slightly so upon passing catheter.

The catheterized kidney specimen from the right kidney showed no red blood corpuscles, 40 to 50 pus cells to the field, pus casts and bladder epithelium. A similar specimen from the left kidney showed a few red-blood corpuscles, 50 to 70 pus cells, epithelium and pus casts. Stained specimens revealed leukocytes and colon bacilli present in the urine from both kidneys. Although repeated specimens were stained, from both bladder and kidney, no tubercle bacilli could be found. Cultural growths showed colon bacilli and staphylococci, mostly colon. With the thalein functional activity test, the first appearance of the drug from the right kidney was in 17 minutes. It eliminated 30 per cent. the first hour and 20 per cent. the second hour, a total of 50 per cent. With left kidney, the first appearance was in 15 minutes, and 40 per cent. eliminated the first hour, 30 per cent. the second hour, making a total of 70 per cent.

Another cystoscopic examination was made on June 12, and confirmed above findings. A radiograph made with x-ray catheter in left kidney was negative.

The local treatment in this case was as follows:

Daily bladder irrigations of boric acid were made.

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1915-16

PRESIDENT.....WILLIAM L. NOBLE, Chicago
 PRESIDENT-ELECT.....E. B. COOLLEY, Danville
 FIRST VICE-PRESIDENT.....C. F. NEWCOMB, Champaign
 SECOND VICE-PRESIDENT.....R. A. MCCLELLAND, Yorkville
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARP, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksonville
 D. R. MACMARTIN.....Chicago
 C. B. KING, *Chairman*.....3938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, *Secretary*.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

MARCH, 1917

Editorials

CHANGE OF DATE—ANNUAL MEETING AT BLOOMINGTON—ONE WEEK EARLIER

A circumstance has arisen over which neither the President, Council nor Committee of Arrangements had any control, which, unfortunately, makes it imperative that the date of the Annual Meeting be changed. The President, with the concurrence of the Council, has set the date of the Annual Meeting one week earlier—May 8, 9 and 10.

We hope this will make no material difference with the attendance, and that particularly those members reading papers will be able to attend.

NOTICE.

The by-laws provide that all members in arrears on Dec. 31st of any current year shall be dropped from membership. Accordingly many members of the Illinois State Medical Society will not receive their March JOURNAL and will

not be protected by the Medicolegal Committee in case of malpractice until they have been reinstated.

If you are not sure of your standing in your county society, please take the matter up with your secretary and see that he gets busy at once.

W. H. GILMORE, Secretary.

SENATE BILL 90.

A bill is pending before the legislature, which, if it becomes a law, will very seriously affect the operating of hospitals. The bill is known as Senate Bill 90, and the section which is objectionable reads as follows:

"Section 1. That no female shall be employed in any mechanical or mercantile establishment, or factory, or laundry, or hotel, or restaurant, or hospital, or telegraph or telephone establishment or office thereof, or in any place of amusement, or by any person, firm or corporation engaged in any express or transportation or public utility business, or by any common carrier, or in any public institution, incorporated or unincorporated, in this state, more than eight hours during any one day. The hours of work may be so arranged as to permit the employment of females at any time so that they shall not work more than eight hours during the twenty-four hours of any day or more than forty-eight hours in any week: provided, that the provisions of this section shall not apply to graduate nurses or nurses assigned to services in operating rooms in hospitals.

Of course, this section was written by some one almost ignorant of anything or everything pertaining to hospital service, but this makes the bill no less obnoxious.

Graduate nurses doing private duty are exempt. They may, under this bill, work twenty-four hours per day. As hospital nurses are practically all nurses in training receiving their education, it is just as reasonable to limit the working hours of an university student to forty-eight hours per week.

There are many objections to the tentative measure. It is impractical to operate a hospital on the eight-hour basis. It is just as practical and equitable to limit the working hours of your domestic servants to eight hours per day, six days per week.

Those hospitals upon which the burden will fall most heavily are those that care for a large

number of laboring people, farmers and other people of limited means. It, of course, will mean that the hospital will be compelled to run three sets of nurses and the same of other help. This will at once necessitate the raising of prices at least twenty-five per cent—perhaps more—for hospital service. This increased cost of hospital care will, in the main, fall upon the poorer class, which is not financially able to afford it. It is estimated that from sixty to ninety per cent. of patients in hospitals are from the laboring classes. Of course, the people who promulgate this bill know all about the increased danger in having several sets of people take care of a critically ill patient.

The Chicago Hospital Association, which includes nearly all the hospitals in Chicago, has opposed the measure with the following objections:

1. Nursing is a profession. It stands in the same relation to the sick of the world as the medical profession. The work of nurses can no more be regulated by a hard and fast law than can the work of the doctors or mothers. The sick and the children are here and they must be cared for. The nurses all over the world will protest at being classed as wage earners.

2. Nurses in training are not employes in the sense that they are wage earners. They are a part of the hospital family and are cared for as a father cares for his children. The money given them is only given as pin money to take care of books, carfare, etc., not as wages. Their whole so-called working time is devoted to the study of the theory and practice of nursing.

3. There exists an erroneous idea that nurses in training are abused and overworked, a broken-down, sickly lot, while in reality, nurses are the healthiest young women in the world, because they live regular hours, eat regularly, sleep regularly and enough, and are taught and made to practice the rules of hygiene that spell HEALTH. The health and well-being of the nurses are of such paramount importance to a hospital that there is no necessity for outside legislation to regulate this. The hospital, to exist, must see that its nurses are mentally, morally and physically right.

4. If the time of the nurses in training is to be reduced, it will be necessary to increase the length of the course in the training schools. There is no more time than is necessary now, to teach them what they must know.

Furthermore, it will require at least a third more nurses in training than we now have, and this will so greatly increase the expense of conducting the hospitals that it will be necessary to raise the rates in all hospitals and reduce the amount of charity done. Hospitals are not money-making institutions. They exist for the benefit of the sick of all classes, and it

is all that a hospital can do now to get money enough to keep its doors open.

5. The hospital cannot be put in the same category as offices, factories, stores, etc. Hospitals must be kept open night and day, seven days in the week.

6. It is apparent that no proper investigation of hospital conditions has been made by any person or persons competent to judge the needs of nurses or employes, to say nothing of the need of hospitals in connection with the introduction of this bill.

We object to supervision of hospitals at the hands of factory inspectors. Investigation and regulation of hospitals in the state is heartily approved, but should be directed by the State Board of Health.

WHY NOT JOIN THE UNION?

Why should not doctors form a labor union—an eight-hour day, double pay for overtime, nights, Sundays and holidays?

Our guess would be that those people advocating an eight-hour nursing bill and a compulsory health insurance bill—people who are ignorant of health matters, but who, nevertheless, are constantly forcing their ill-advised notions upon legislators—would be the first to complain of such an injustice. It would almost be worth the price to hear the noise.

NEW YORK MEDICAL SOCIETY REJECTS HEALTH INSURANCE

Resolution adopted by the Medical Society of the County of New York at an adjourned meeting of the society, Wednesday evening, February 14, 1917:

Resolved, That this Society disapproves of the medical provisions of the Bill for Compulsory Health Insurance and the appointment of a Legislative Commission to study the subject, and directs its Committee on Legislation and the Delegates of the Medical Society of the County of New York to the Medical Society of the State of New York to take the proper measures to oppose its passage by the Legislature.

RUSH ALUMNI.

We would call the attention of the Rush Alumni to the communication of Doctor Freer, published elsewhere in this issue. Doctor Freer has shown the other side of the passing of Rush Medical College,—the side which we have not heard much about.

The name of Rush Medical College should always remain alive, and Rush College should

not cease to exist. No doubt, as the Medical Department of the University of Chicago, the college will receive a greater financial aid, but medical colleges need other things than money. A medical college needs an alumni association,—one that is loyal to the Alma Mater. There will not be an alumni association behind the new organization. It is truly the passing of Rush.

IS RUSH MEDICAL COLLEGE TO BECOME EXTINCT? AN APPEAL TO THE ALUMNI.

OTTO TIGER FREER, M. D.
CHICAGO.

In Polk's Medical Directory of the United States and Canada the number 126 is found often repeated in the columns of names, this number indicating a graduate of Rush Medical College. The date of graduation after the number, however, is usually before 1902, the dates since then showing but a scattering of Rush men among those from other colleges. This means that the great majority of the sons of Rush has become middle aged, elderly or old and that the great army of Rush graduates in the Western hemisphere is rapidly shrinking for reasons to be explained here, which will also show why even the trickling stream that now serves to keep the alumni of Rush from final extinction is soon to be shut off, so that the alumni association, left without recruits, will become a hopelessly dwindling band which will shrink from year to year until the last Rush alumnus will hold the last Rush alumni banquet, alone, as chairman, secretary and house all in one, to give a ghostly toast to his ghostly alma mater, long since dead.

In 1898 the great leaders of Rush of the last decades of the past century were gone from earth or were going fast. *AS A SACRED TRUST* they left Rush Medical College to successors to preserve until they in turn laid down the leadership. These men, forsaking the safe path of gradual upbuilding of the college that had been followed by their elders, decided at the price of the independence of Rush to make it the medical department of the University of Chicago. Awed by the great wealth of the new university and of its founder, in misplaced humility, they did not see the greatness of their own school, with its magnificent history, its immense throng of alumni, the cream of the

medical profession, and so, not daring to demand the equitable bargain they were entitled to, they gave Rush Medical College, its destinies, freedom and property to the university, without exacting a single pledge in return, merely accepting a promise from the president of the university that he would do his best to get its founder to endow Rush as its medical department. An endowment of six million dollars was humbly hoped for. Instead of being made a party to a properly safeguarded bargain therefore, Rush College was made to risk its existence in a mere speculation. As is the case with most speculations, expectations were not fulfilled. No money was given to Rush, which was merely permitted an humiliating "affiliation" whose very existence loudly proclaimed that the University did not regard Rush as worthy of an organic union. Without furnishing the college funds to properly carry out the demands made upon it the university insisted upon so drastic a raising of the standard of admission to the college and upon so great an increase of the years of study, that Rush was deprived of so many of its students and their fees that only a financial struggle and the most rigid economy enabled it to exist. The university undertook the teaching of the fundamentals in the first two years, but also generously deprived Rush of the fees of these years. In fact, Rush was changed from a great, energetic, independent medical college, free to progress in its own way, to an imitation University Medical School without the very necessary vast means required by a university school, while its freedom of direction was replaced by onerous restrictions and exactions imposed by another institution that did not understand its needs.

Class unity and the immensely valuable influence of the older upon the younger students were lost by dividing the teaching between two faculties separated by many miles of city. The younger teachers who were working to establish themselves in the specialties were disheartened by the reduction of the classes to so few men, that they were practically deprived of their only reward for teaching, future references from their students after they had entered practice. Clinical facilities were of anything but university grade. The dispensary clinics lacked equipment, anatomical specimens and above all, attendants to care for instruments, apparatus and draw-

ings. The removal of the department of anatomy to the University made the very necessary cadaver demonstrations and cadaver practice for the students so difficult, because of the great distance of the college from the university, that they were practically impossible, except for the two teachers who had cadavers especially assigned to them at the college. Although the Presbyterian Hospital grew amazingly in space for private patients, there was as great a lack of free beds as ever, so that in our department patients needing operation often had to be sent away as there was no room for them in the hospital.

Putting the best face upon the matter, the faculty leaders referred to the days of large classes in Rush before the affiliation as a period to be ashamed of and extolled the system which sent a few highly drilled students into the world instead of the lusty throng, that for over a half century had been such a blessing to the land that to be a "Rush Man" was to be regarded by the community as being of the best in medicine. The faculty ignored the fact that in regard to service to the state it is better for a medical college to graduate two hundred students 90 per cent. good than ten students 100 per cent. good, especially as the rejected 190 students that might have attained the 90 per cent. grade were forced to seek inferior schools that gave them a far lower percentage of medical worth than was obtainable at Rush. By concentration of the efforts of the entire faculty on only one student he might have become ineffably sublimated, but it would have been a poor function for a great college.

The faculty leaders also shut their eyes to the past history of Rush, which showed a continual tendency to conservative but steady advance in standard, and they always refer to the Rush of the large classes at the end of the '90's as if, as an independent college, it would have always clung to the standard of that time.

During the eighteen years since the affiliation Rush has had no financial help from the university and has been left to struggle on as best it could. Now at last, thanks in part to the efforts of members of the faculty of Rush, a vast sum has been raised—to do what? To do what was expected would be done at the time of the affiliation, to make Rush Medical College the medical department of the University of Chicago?

Not at all, to found a new medical school at the University, for the University, managed by the University alone, and—to deprive old Rush of its existence.

The entire faculty of Rush is to resign and disband. The property of Rush is to be taken over by the University. A graduate school is to be created upon the site of the present Rush College buildings and it is intended *perhaps* to give this the name of Rush, "to please the alumni." It is uplifting to feel that we are to have so much consideration shown us, but a graduate school does not make doctors and will do nothing to keep the alumni association alive. Nor will the alumni of the New Medical School on the Midway be in any sense alumni of Rush. The Rush alumni will indeed have to have most active imaginations to think themselves alumni of this new department of the university and to think its graduates their fellows and the latter, bred in an exalted scholastic atmosphere as a highly cultivated special breed of medical men, will hardly consent to regard themselves as Rush alumni. To quote the University of Chicago Magazine: "This will provide in the quadrangles of the university a complete medical school, leading to the degrees of doctor of medicine, to be given by the University of Chicago." No mention of Rush there!

In the Bulletin of the Rush Alumni Association for January, 1917, in articles by Dr. Billings, Dr. Ingals and Dr. Dodson, the plans, future and wealth of the coming medical school of the University of Chicago are fully set forth. Dr. Billings says that "every alumnus of Rush Medical College must feel a just pride that his alma mater will take a part in this wonderful medical school." Whether every alumnus should feel this undeniably correct and commendable variety of pride depends, to my thinking, entirely upon the manner of this participation of his alma mater. The "part" which it is indicated that old Mother Rush is to take is obviously that of elimination. The matter would, indeed have been different if the intention were to make the coming University of Chicago Medical School what we all expected it would be at the time of the affiliation in 1898, namely, Rush Medical College, Medical Department of the University of Chicago. It looks to me as if the leaders of the faculty and the authorities of the

University of Chicago were ashamed of old mother Rush, didn't think her worthy of the refined atmosphere of the university circles. Now it seems to me and I think that the alumni of Rush will agree with me, that the name Rush Medical College has been a glorious one from the time of its origin in the first half of the last century until the affiliation in 1898, and that it is a name that any American university should be proud to acquire for one of its departments. There are enough "halls" named after donors whose chief merit was wealth brought to the university. Rush brought the fame of the best and greatest medical school in the west and a long historic line of illustrious names from Brainard to Fenger. To now give away the great name of Rush to a graduate school, a side show, when her purpose has always been that of making the best doctors in America, is merely to placate the alumni by "preserving" the name of Rush in a manner quite at odds with the purpose for which Rush Medical College was founded; it is to pervert the sacred bequest of the earnest men who conducted the affairs of Rush in the past.

Even were the new medical school of the University given the name of Rush, it would not be Rush Medical College, for the new school will be a new creation holding neither the traditions, history nor spirit of Rush, and will no more be Rush than is the Medical Department of the University of Michigan.

Dr. Billings says: "I feel sure, too, that the glorious reputation of Rush Medical College and its name will be preserved." He need not worry about the reputation, that will endure, but—the name! When one says one "feels sure" one is not quite sure.

The stern logic of the case is that with the beginning of the new school Rush will end. The efforts of the part of the faculty that helped to make the new school for the university were in the interest of the university and not of Rush, which as a medical college, is to be eliminated, that is, the production of alumni of Rush Medical College is to cease for all time. It is mere make believe to regard the alumni of the new school as Rush alumni; such a transmigration of souls can not take place.

Had the leaders in the faculty served old Rush instead of the university our college might now still be the great, proud, independent medical

school it once was, enriched by this time by endowments and, keeping abreast of the times, as it always did, in standard and equipment.

Would the men who conducted the fortunes of Rush in the last century, all so enthusiastically loyal to the college, have planned its elimination in favor of another institution?

If we can have nothing left of our college but its name, let this at least represent old Rush in a worthy manner. Alumni! Demand that in the memory of glorious old Rush the name of the entire new medical school be: *Rush Medical College*. Be satisfied with nothing less!

It is very evident from a perusal of the articles in that last beautiful glazed paper number of the Bulletin mentioned, that their writers are trying to make themselves believe that the new medical school is to be an uplifted, purified and exalted Rush, but no ignoring of the facts can hide the obvious conclusion that the end of Rush is at hand, and that the new medical school is not Rush Medical College. *Sic transit gloria Collegii Rushiensis!* The alumni have been deprived of their birthright! Let those who doubt this read the Bulletin of the Alumni Association of Rush Medical College for January, 1917.

OBJECTIONS TO SOCIAL OR COMPULSORY HEALTH INSURANCE BY COMMITTEE ON HEALTH INSURANCE

OBJECTIONS TO COMPULSORY HEALTH INSURANCE.

The Bill.

Briefly, the bill and the plan of the American Association for Labor Legislation contemplates providing for all manual laborers and for all employees earning less than \$100.00 per month, as follows:

In all cases of sickness and all disability from accidents not covered by Workmen's Compensation—

1. Cash benefits (two-thirds of wages) for 26 weeks only.
 2. Medical service.
 3. Surgical and nursing attendance.
 4. Medical and surgical supplies.
 5. Hospital service.
 6. Cash benefits to dependants.
 7. Funeral benefits.
 8. Maternity benefits.
 9. Dental work.
 10. Medical treatment of dependants.
- The cost is to be divided as follows:
40 per cent by the employer.

40 per cent by the employee.
20 per cent by the state.

Origin of the Bill.

Real or imaginary conditions in the U. S. have caused many welfare workers and social reformers to organize the American Association for Labor Legislation. The association evolved a theory of social betterment predicated upon conditions and social insurance systems in Europe.

Unsolicited and Objectionable to Those Most Interested.

While organized labor, the employer of labor, the taxpayer and the physician are the ones most vitally interested in Compulsory Health Insurance, it is interesting to know that all these interests are unequivocally opposed to it.

The demand for this legislation has not come from representatives of labor, whether organized or not, but chiefly from those who are not the representatives of wage-earners' interests. It is extremely significant that this movement, which primarily concerns wage-earners, and their dependants, should be strongly opposed by the American Federation of Labor.

We will show that the employer of labor, the taxpayer and the physician should oppose this measure.

Limited in Scope.

As yet the social reformer calls only for state-provided sickness insurance, in this tentative draft compiled by the American Association for Labor Legislation, while with equal arguments and authority he attempts to prove the necessity of invalidity insurance, old-age insurance and death insurance by state provision.

Premature.

No new health insurance legislation should be enacted before we rectify the unfairness of the present compensation law. State insurance for accident compensation should be tried out before we attempt to enact such laws.

Unnecessary.

In Illinois the theory of social insurance is not predicated upon necessity. The present system whereby the poor are treated by the most efficient medical men is far better than the 10-20-30-cent inefficient type of medical service furnished by physicians in communities where health insurance obtains.

The medical profession, while being most heartily in sympathy with real reforms, does not believe that the social and economic conditions that now prevail in our state would in any way be benefited by the adoption of health insurance legislation.

Poverty Not the Cause of Disease.

That poverty is the cause of sickness, and not sickness the cause of poverty, as many of our economists would lead us to believe, is not true. And the mere makeshift of paying a small indemnity in case of illness and broking the medical service, which would tend to do away with competition in the profession,

aiding a certain class of physicians who would have no responsibility except to do quick work and connive with certain elements of the insured to the detriment of all concerned and in this way bring about the poorest kind of medical service, would only add to the condition of poverty by shifting the burden of paying a living wage and giving steady employment from the place where it belongs.

Prohibition a Factor.

Prohibition will be established in Illinois in the near future. This will do away, in a large measure, with the need, if any now exists, of health insurance, for the reason that after it is established people will have sufficient money with which to pay legitimate bills.

Unsatisfactory in Europe.

Health insurance is not working out satisfactorily in Germany.

In England it is charged with giving inefficient and unsatisfactory service to the insured.

Honorable Francis Neilson, ex-member of British Parliament, a student of political economy, speaking before the Chicago Medical Society December, 1916, said that social insurance in England is a dismal failure; that it was copied after the German system, and that Germany's system is a failure. He says that one has but to investigate all conditions to prove it.

Under the laws, the people are entitled to the best medical service that money can buy, but, in these countries they are getting the worst medical treatment in the world.

In France the weight of learned opinion is against compulsory insurance.

Will Extend Medical Charity Abuse.

While it is claimed by its advocates that it will solve the question of the abuse of medical charity, on the contrary, we will be jumping out of the frying-pan into the fire, for it will substitute a worse form of abuse than the one we are trying to rid ourselves of.

They claim that "under the proposed law all medical service to the insured will be paid for, including the unremunerated dispensary practice of today. This future 100 per cent collection is a delusion. The hard, cold facts of the situation are: The physician's charity list is made up of those who are not provided for in this bill.

There are too many of the unemployed, casually employed and self-employed, whose incomes are insufficient to permit them to carry the voluntary insurance the law provides, but whom the physicians must care for as charity patients. In fact, it is seldom that the regularly employed constitute the physician's free list.

In addition to these who constitute the present charity list will be added the 240,000, who, through physical unfitness or old age, will be driven to involuntary idleness through the operation of this bill.

Bill Not Comprehensive.

From a health insurance standpoint, the scheme is inadequate in that it successfully avoids giving med-

ical service excepting to the unusually healthy. You cannot choose the healthiest lives in a community and give them selected service on small pay and think that you are doing anything for the community, because a health insurance scheme must take in all lives, the sick as well as the healthy, and must give good service to all.

Bill Against Interests of Employers.

Selection of employes would cease to be based upon efficiency and value to the employer as at the present time, but upon the state of health and presumptive continuance of this good health. Conversely, when this state of robust health diminished in the employe, the employer would, as a matter of self protection, be forced to replace this man with a stronger one.

To determine this, a severe and searching examination is made by the company physician, and those who cannot pass an examination equal to a rigid life insurance examination are rejected.

Edkins, of Chicago, in a lecture on "The Selection of the Employe," says: "The final question in the problem is, 'Is he physically fit?'"

As framed, the law would make no distinction between the physically sound and the cripple, maimed, physically weak wage earners, chronically afflicted, inebriate or venereally diseased, or those whose age would presume more frequent and more protracted illness. (Sec. 3.) Such provisions would cause the employer to set up physical standards as yet undreamed of, and must create a very large number of cast-offs, who virtually become non-wage-earning derelicts, but for whose support no provision is made in the proposed law.

Bill Against Interests of Employes.

How will it be when all employers must do the same, for it cannot be denied that the discarded class will come into existence concurrently with compulsory health insurance? That would present for Illinois the problem of how to provide employment or a living for the 8 per cent or 192,000 physically defective wage-earner discards. After those were provided for, it could do the same for the 2 per cent, or 48,000, perfectly good wage-earners 55 years of age or over who would be rejected by the carrier associations. The limit of acceptance by most carriers of Europe is 50 years while some make it 45 years.

Will Not Decrease Poverty.

The lot of the casual laborer would be grievously hard. It is axiomatic that the less a man earns per day the fewer days he works. Many cannot spare the amount necessary to pay the premiums continuously in order to receive the benefits. Therefore, those who are unable on account of general incompetence, previous illness or any other disabling condition, will be left outside the operation of this bill.

The proposed health insurance legislation does not make provision for the very poor, as such plans include the steady workers (a picked group), and not those who most need the insurance.

Moreover, the casual worker, the physical-defective and the wage-earner above the insurable age who at present are able to provide for their own needs by at least part-time work, would by this bill be forced into involuntary idleness and consequent poverty.

Professions' Income Affected.

The point is made by the advocates of health insurance that the income of panel physicians will be increased. That is true, but it will be the least efficient doctors who will make the most money and, from the standpoint of the people, the service will be much deteriorated.

Will Lower Professional Moral Tone.

Paying a physician a fixed salary per annum per family will mean perfunctory services. Paying a physician per call or per the nature of the service will mean superfluous calls and unnecessary services. Antitoxin may be injected in follicular tonsillitis; operations may be performed where none is really indicated. As long as there is a quantitative relation between services and compensation, superfluous services are inevitable.

The proposed draft leaves the way open for superfluous consultations. No matter how much less a consultant or surgeon will be paid under health insurance than at present, the competition for business will result in secret conniving between panel physicians and panel specialists.

The general practitioner will be at the mercy of the medical officer or cliques of doctors organized into hospitals, for, according to Sec. 13, "a patient may be ordered to a hospital by the fund or society or by its medical officer, without the consent of the attending physician. The medical officers may be prompted to this action as a result of being in league with certain hospitals or in consequence of hostility to certain physicians.

Furthermore, just as soon as compulsory health insurance becomes a fact, certain physicians will underbid the panel physicians, and with the insurance companies and funds to back them, will compel the commission by law to accept their bids.

It Will Decrease Professional Efficiency.

It will convert the practice of medicine into a vast kind of lodge practice (with all its evils), and is bound to result in incompetent medical service.

We believe that efficiency should be the standard of success. Under this system the doctor is going to do as little work as he can; this will mean that the physician will make two-minute calls instead of twenty-minute calls. To illustrate the inefficient character of the emergency panel service, note that in Austria a physician for an insurance society is allowed 48 hours (two days) in which to answer a call, and in England and other countries having health insurance the panel physicians refuse or evade making night calls.

It will hamper medical efficiency—in other words, the quality of medical service will degenerate under

this law. The physician who will lengthen the period of disability for the patient will be the most popular and financially successful; the physician of conscience and ability, refusing to conform to the professional and moral status of the unscrupulous, will be forced to penury or forced out of the profession of medicine.

Under the proposed scheme, the practice of medicine would become standardized in this country to an intolerable degree of inferiority, for the reason that the men of real medical ability would eventually be forced to the educational and social status of the mediocre panel-physician, which is unspeakable in Germany, where the law has been in operation for the longest time.

Destroy Incentive for Medical Research.

It would stop scientific progress in medical research as it has in Europe, by destroying the incentive for research and individual excellence. It would, therefore be undesirable to the public, by whom the effects of inefficient service would be most keenly felt. In other words, where medical progress is retarded, the physical welfare of the nation is jeopardized.

Make a Dissatisfied Profession.

Health insurance cannot exist without physicians. They are the essential cog in the machinery necessary for building up such an insurance system. Nor can such an insurance scheme obtain and maintain its greatest efficiency unless physicians are so satisfied as to allow the development of medical science.

A dissatisfied profession would be a poor help in time of war, especially if the skill of the profession should deteriorate as it has in Germany and England.

Productive of Malingering.

Health insurance would create much malingering; 60 per cent of all cases coming before the insurance commissions in Germany and England are disagreements based on malingering; likewise, a great percentage of cases before the industrial board in this state are for the determination of continued benefits upon this basis.

Destroy Personal Relationship Between Patient and Physician.

It would bring about compulsory medical attendance and do away with that personal and confidential relationship between doctor and patient, taking from the sick one that confidence, trust and friendship which is such an important factor in the proper treatment of disease. It is this element which makes the practice of medicine a profession and not a business. It is not wholly the dose of medicine that cures the patient, but success is frequently in a considerable measure due to the confidence the patient has in the family physician. This feeling of confidence, trust and personal relationship between doctor and patient so essential in promoting restoration to health should not and must not be disturbed by legislation.

Villard says: "One of the saddest things to note

since the adoption of the German social insurance is the change in the relationship existing between doctors and their workingmen patients."

Would Not Improve the Public Health.

The alleged improvement in health would not materialize. It will not remove the cause of illness, nor will it reduce the number of cases or the average length of disability, and we have but to refer to existing records of similar schemes in Europe to prove this assertion.

In 1911 the German sickness societies spent more than twice as much as in 1901, although the number of members increased only one-third. In 1891, the number of cases of sickness per 100 insured was 35. In 1901, it was 38. In 1911, it was 43. And the average period of disability rose from 16 to 19 days, and during that period of 20 years Germany also spent one hundred and ten millions for hospitals and sanatoria.

Would Result in Class Distinction.

This bill would result in dividing the people into classes, as the first step in establishing social insurance is to divide people into two groups—those eligible for benefits and those considered capable of caring for themselves. The division is based upon wage-earning capacity. This governmental regulation would tend to fix the class-status of the citizens, even subclassifying the wage-earners, and a long established insurance system would tend to make these lines of class demarcation rigid.

On November 18, 1916, President Wilson, in addressing a delegation from the American Federation of Labor, warned them against class distinction. He said: "What I have tried to do is to get rid of any class division in this country. The worst thing that could happen to America would be that she should be divided into groups."

Subversive of Public Morals and Tends to Pauperize the Recipients.

The moral injury that will be done the beneficiaries of this misguided benevolence is past computation. It lessens the public ideals of truthfulness and honesty, destroys the spirit of personal independence and increases the moral trend toward pauperism.

Such a law would be a blow to individual pride and would result in the blunting or destruction of an element strong in the progress and achievement of the nation—American independence.

It substitutes coercion for voluntary thrift and would humiliate a very large class of wage earners who are not only willing but anxious to do for themselves.

It would pauperize 25 per cent of our people, and it is our belief that no one can become the recipient of public charity without a dulling of the finer sensibilities which a true system of education and government should endeavor to inculcate and foster.

We believe that social insurance, compulsory health insurance, welfare insurance, state-provided sickness

insurance, etc., by whatever name known, is but a form of "poor relief."

We believe in health insurance for the wage-earner, but we believe that he should pay for it, and that it should not be 40 per cent purchase and 60 per cent charity.

Unconducive to Ambition and Individual Effort.

The adoption of paternalistic health insurance will destroy in the citizen individual initiative and the incentive to thrift and industry. There will be no longer an incentive for the individual to employ the genius and talents with which he is endowed, to exercise his initiative, to forge ahead and better his own condition, stimulated by the thought that he is to enjoy to the fullest extent the reward of his own efforts.

If the state is to provide for them in sickness, protect them from misfortune and distress so long as the individual lives, what becomes of that inborn ambition lodged in the heart of every human being to rise above his fellows, and, if possible, succeed where others have failed?

Exploitation of Profession.

It is another scheme to exploit the profession by the community. Note the trend of professional exploitation for which the doctors are largely to blame.

According to the *Medical Economist* of New York, April, 1916, one-fifth of one per cent (the medical profession) does 95 per cent of the charity work; 50 per cent of the profession of New York City find it difficult to meet their current expenses, economize as they may (*N. Y. State Jour. of Med.*, Aug., 1915).

In Chicago, in 1907, an authentic survey showed that 25 per cent of the population received free medical treatment, while the average normal per cent of the population receiving charity other than medical was one-half of one per cent. The accuracy of this was vouched for by the Bureau of Charities and the Committee on Abuse of Medical Charity of the Chicago Medical Society. This abuse has increased by leaps and bounds during the past ten years.

The Chicago Bureau of Charities, 1907, is authority for the statement that in this city, having at that time a population of 2,000,000, the total amount of charity expended per year was \$2,500,000. This includes the amount spent by the City, County and private organizations of every name and nature. Contrast this with reliable data presented at the time showing that the little band of physicians then numbering 3,000 were giving annually upwards of \$7,000,000 to charity, or three times as much as all other agencies combined. This condition and its increase in the past ten years are due largely to the shortsightedness of the physicians themselves in promiscuously offering gratuitous service, which cheapens the one who offers as well as him who receives it, and to the disposition of health departments to encroach upon and enter into the practice of medicine.

The legitimate function of health departments is sanitation and disease prophylaxis and not the treat-

ment of disease. The public charities of the state can and should care for the indigent sick; the treatment by them of special diseases is an unnecessary expense which pauperizes the community and prostitutes the profession.

The social service directory of the Public Welfare Commission of Chicago shows there are hundreds, if not thousands of hospitals, dispensaries, social centers, settlements, nurseries, religious and civic organizations and national societies, all giving free medical care at the expense of the physician. Without the free services of the doctor such institutions could not exist. Strange as it may seem to the lay person, the medical direction in such institutions is the only gratuitous service or commodity furnished.

Experiment at Expense of Medical Profession.

We feel that medicine should not be made to bear the brunt of this new experiment in paternalistic government, nor should we permit special legislation to socialize medicine before the public is ready to adopt a complete socialistic form of government.

Why should the profession be taken from the hands of the physician and a price be put upon his services when it is not the case in any other employment? In fact, the trades unions are making their own wage standard and the popular opinion is bearing them out in it.

A lay person should have the same right to expect state-provided legal services as he has to demand such medical treatment. If there were a bureau of justice established where, in criminal or civil cases, citizens were entitled to the best legal defense at the expense of the taxpayer, the legal profession would storm the halls of the legislature until such practice was declared illegal; but the long-suffering medical profession, from a habit of atavistic submission, meekly kneels down to receive any added burdens which official zeal or personal ambition sees fit to impose.

Labor Conditions in Illinois Do Not Require It.

Labor conditions in Illinois are not such as to call for state intervention in the personal affairs of the wage-earners. We have the blessings which come from an individualistic system, from a freedom of initiative and action, from a broad opportunity to work and to achieve. Shall we give up all these civic rights and depend upon the government, as an indulgent parent, to shoulder our burdens, rather than rely upon our own brains, our own strength, our own initiative, our own opportunity?

If the state is to coddle some wage earners and help them up the hill, why not clothe, feed and house them, and divide 60 per cent of the cost, as this charity health bill provides, 40 per cent to employer and 20 per cent to state? Why not go a step farther, to be consistent with the present bill, and establish farms to furnish produce, mines to furnish coal, mills and factories to furnish all wearing apparel at cost.

Care of the Sick Poor a Community Responsibility.

To those indigent sick who are unable to provide medical care for themselves or their dependents, it should be furnished and paid for by the state, not at the expense of the medical profession, but at the expense of the community at large. Medical charity should be administered the same as any other poor relief. It is detrimental to the morals of the community to administer it in any other way.

Plan an Economic Waste.

It will not effect an economic saving. We call attention to the fact that the promoters announce to the public a plan to save that enormous waste of time-value which we admit exists, and which they present in such startling figures, but after presenting the loss figures, the plan makes no pretense of saving more than a small portion, and that economy, by their own figures, will cost three times the value of the time saved. By these same figures, each beneficiary will pay into the fund more than he receives in cash benefits. Where is the economy? The cost will be three times the saving, and double the value of savings and benefits.

Prohibitive in Cost.

The cost of operation will be enormous, and, therefore, against the best interests of the taxpayer, the employer and the insured. It is a matter of record that the administration of such funds, as demonstrated by the Associated Charities and kindred organizations, costs over half the fund.

Under such a scheme as this compulsory health bill, the tax burden would increase tremendously. Let us see what this law would cost the state of Illinois.

At \$24 per capita per year, which is the lowest estimate yet made, Illinois' annual bill for state-provided sickness insurance for its 2,400,000 workers of all kinds would be \$57,600,000. Forty per cent of this, amounting to \$23,040,000, would have to be paid by employers who would increase the cost of commodities, which means that in the end the public would have to pay the increased tax. \$23,040,000 will have to be paid by the workers themselves and \$11,520,000 will be paid out of the state treasury. This means an 83 per cent. increase, or nearly doubling of our present direct state tax.

This increase will be on the state tax alone, but it would not end there. The whole cost to every township, city, town, village and county must also be paid by increased taxes, and after the taxpayer has figured out just how much the whole tax amounts to, he can, if he is an employer, add on 40 per cent. for the cost of the insurance of his own employees. In Illinois the employer taxpayer will find the sum to be paid by them is approximately \$40,000,000. Conditions in Illinois are not such as to warrant this huge expenditure.

Productive of Bureaucracy.

The legislation proposed in Illinois and other states calls attention to what would be the inevitable con-

sequences of adopting this policy. As is evident from the proposed measure, it would build up a bureaucracy that would have some degree of control or authority over all of the workers of the state. It is in the nature of government that when even a slight degree of power is delegated, the natural tendency is to increase that power and authority so that the purposes of the law in question may be achieved more completely.

Dangerous Political Movement.

It will build up a great political organization which has a dangerous aspect. In the American Labor Legislation Review (pages 255-6) it states that if the state can handle this insurance, it will "afford rich opportunities for political favoritism and log-rolling." The opportunity for political organization is better comprehended by considering a few figures.

The city of Chicago has 32,000 employees who would come under the law, and that would mean 13 carrier associations employing 1,300 politicians to govern and administer the carriers' affairs; about half full-time, and the rest part-time or associate connections; all full-time employees to be paid 100 per cent. of wages and 60 per cent. of the cost of their compulsory health insurance by the city, while all part-time or specially affiliated would be in position to enjoy the "favoritism and log-rolling."

All cities in the state would establish similar political unit carriers. Bear in mind that every hamlet, village, town, city, township and county must pay for its employees, and it isn't likely that such splendid opportunities for organization and employment of politicians would be overlooked, more especially because the taxpayer would have to pay for it all. The state also employs enough to establish a good many political carrier units.

The whole number of carriers of all kinds to care for the 2,400,000 wage-earners in Illinois, based on the German, French and English average of 2,500 wage-earners per carrier, would be 1,000 associations, and it is reasonable and conservative to estimate that at least 200 associations in Illinois would be politically organized, equipped and controlled. Two hundred associations would mean 20,000 full-pay or part-pay, or "log-rolling" political berths.

Commissioner Potts of Illinois said in substance in his introductory remarks at Richmond recently, "The political party in power at the time this form of insurance is assumed, might perpetuate itself."

Indefinite in Its Provisions.

The scheme as outlined is impractical and unfair, in that you could not bring more than a small portion of the wage-earners within its provisions.

It presents no element of security or solvency. (Sec. 42.) It insists upon compulsion, yet cannot compel. (Sec. 3.) It claims all described laborers and wage-earners, yet admits that many cannot be brought within. It proposes co-operative administration without state participation, yet it makes the whole

plan absolutely state-controlled, dominated and dictated, because no association can organize or make a move without the consent and approval of the state commission appointed by the governor. (Sec. 25, 26, 28, 37, 38, 41, 42.)

It contemplates that the real cost of operation shall not be known, as it provides that a very large part of the expense shall not be paid from the funds collected, but shall be paid through the general expense fund of the state.

(Sec. 46, 47.) It provides that wage-earners may insure outside the regular association organized under the law, but it provides penalties against the employers of such if they do.

(Sec. 39.) It recognizes probable insolvency of associations, yet makes no provision against same.

Un-American and Subversive of American Ideals of Democratic Government.

The entire agitation is artificial and ill-advised. It is a scheme of paternalistic government of the rank-est kind and antagonistic to the spirit of American institutions and the ideals of our democratic form of government.

The American people are not willing to change from individualists to paternalists.

Compulsory sickness insurance for workers is based upon the theory that they are unable to look after their own interests, and the state must interpose its authority and wisdom and assume the relationship of parent and guardian. There is something in the very suggestion of their relationship and this policy that is repugnant to free-born citizens, because it is at variance with our concepts of voluntary institutions and individual freedom.

To compel a citizen, against his will, to enter into an insurance contract and impose upon him the burden of paying the premium, in whole or in part, is un-American and dangerous to civil liberty.

The adoption of compulsory health insurance would mark the beginning of a socialistic state, under which all rights of the individual are subordinated. The American people have not yet reached a point where they are willing to relinquish to the state or federal government the right to perform these new functions, which really have their origin in the monarchical governments of the old world.

Samuel Gompers said, at the hearing of the bill before the Congressional Committee:

First, let me call attention to the fact that these are not facts. They simply have their bases in a peculiar and speculative theory called by the possessors philosophy, but which might better be termed sophistry. From the viewpoint of the super-speculative theorists, when facts do not conform to the theory, it is so much worse for the facts. In other words, the Socialists, or the professoriat of the Socialist party, start out with the theory and then proceed to distort facts in order to try to prove it.

The whole scheme, the whole fault, the whole philosophy represented by Dr. Rubinow officially before this committee, and by Mr. London, as a representative of his political party, contemplate not individual development, not opportunity for initiative, for voluntary action, but regulation by the state. These people want to have laws enacted to make the other people conform to their concepts and recipes out of number.

May I say this, that Dr. Frederick Howe, who has written a book dealing with social insurance, in making contradistinctions as to the systems in vogue in the United States and Germany, makes this very significant remark: "Germany has so strengthened the state as to have devitalized the individual."

There is a difference as to concepts of forms of government—concepts of what is best as to the makeup of a people, the character of the people and the government which is established over them, or which they establish. I believe in that class of American citizens who believe in the vitality of the individual, in the vitality of the people as against a strong centralized government, a socialized government.

And this by Frederick L. Hoffman (ex-president American Statistical Association):

It is, therefore, decidedly to the interests of the American people that the propaganda for compulsory health insurance should be intelligently and persistently opposed as un-American because of the vicious class distinction, as uncalled for by the social or economic necessities of our wage-earning population, as needless because of our satisfactory health conditions, and as contrary to public policy because of the resulting discouragement of any and every form of voluntary thrift. To those who are responsible for this ill-advised propaganda it may well be said, in the words of the late Mr. Lecky, that "How few who share the prevailing tendency to deal with every evil that appears in society by coercive legislation adequately realize the danger of weakening the robust, self-reliant, resourceful habits on which the happiness of society so largely depends, and at the same time by multiplying the functions and therefore increasing the expenses of government, throwing new and crushing burdens on struggling industry!" and, in the words of the same learned student of social and economic forces making for human progress or decay, "Injudicious charities, or an extravagant and too indulgent poor-law administration, inevitably discourage industry and thrift, and usually increase the poverty they were intended to cure." Compulsory or coercive health insurance is no more and no less than a skillfully disguised form of poor relief, which is certain in the end to prove productive of a vast amount of harm to wage-earners and their dependents under the lure of the belief that their interests are being served in a direction in which voluntary effort is fully sufficient to achieve the end desired in due course of time.

In view of the above objections and as a protest against past or future encouragement of exploitation, socializing or paternalizing the medical profession of Illinois, the committee submits the following resolutions: Be it

Resolved, That the Committee on Health Insurance of the Chicago Medical Society hereby urge upon the physicians of this commonwealth, that they do not favor the enactment into law of any of the proposed health insurance measures, holding them unnecessary, undesirable and pernicious, and against the best interests of the people of the state of Illinois; and, be it further

Resolved, That this report be given as wide publicity as possible and a copy be furnished each member of the legislature.

Committee on Social or Health Insurance
of the Chicago Medical Society.

The committee on health insurance of the Illinois Medical Society concur in the above report.

EDWARD H. OCHSNER,	W. E. FIEGENBAUM,
GEORGE APFELBACH,	W. B. CHAPMAN,
C. A. HERCULES,	Secretary.
S. V. BALDERSTON,	CHAS. J. WHALEN,
J. R. BALLINGER,	President.

WORKMEN'S COMPENSATION COMMISSION

RESOLUTIONS OF THE COUNCIL, CHICAGO MEDICAL SOCIETY

Meeting of February 13, 1917

Dr. Thomas A. Hogan presented the following resolution:

WHEREAS, There is in the Executive Department of the U. S. Government a branch of the service known as the Workmen's Compensation Commission, the duties of said Commission are to administer the Federal Employes Liability Act; and,

WHEREAS, Probably 90 per cent of the work of the Commission will be medical in character; and,

WHEREAS, The President of the United States has nominated as members of said Commission the Reverend R. McMillan Little of Swarthborne, Pa., a preacher of the United Presbyterian Church; a Mrs. Axtell, of Bellingham, Wash., a social worker and a defeated candidate for Congress, and a J. J. Keegan, of Indianapolis, a member of the International Association of Machinists, formerly a member of the State Legislature; and,

WHEREAS, The first of these mentioned is stated to be a Republican, the second a Progressive, the third a Democrat; and,

WHEREAS, All rules of business logic would suggest that where ninety (90) per cent of the duties is medical in character that at least one member of the Commission should be a physician; therefore, be it

Resolved, That the Chicago Medical Society, the largest local medical society in the United States, through its Council, protests against this unfair discrimination against the medical profession, and while we realize that this condition was probably unintentional and unpremeditated, ask that the personnel of the Commission be altered or enlarged to include medical representation. Be it further

Resolved, That a copy of these resolutions be sent to President Wilson, and be it further

Resolved, That a copy be sent to the *Journal* of the American Medical Association and ILLINOIS MEDICAL JOURNAL, with the request that the same be printed.

Moved and seconded that this resolution be adopted. Carried.

YOUR COUNTRY NEEDS YOU

Today the Government needs five hundred thoroughly qualified young men as medical officers in the United States Army and Navy. Enrollment now is a patriotic duty. The career is honorable and attractive and under present conditions promotion is rapid.

The requirements in essence follow:

REQUIREMENTS FOR ARMY MEDICAL SERVICE

Applicants must be citizens of the United States, between 22 and 32 years of age.

Physical soundness: at least 5 feet, four inches in stature; weight 120 pounds.

Vision normal, or entirely corrected by glasses.

Satisfactory medical diploma.

Marriage no bar.

One year's hospital training.

Preliminary examination (similar to graduation examination and general average of 80 per cent required). Examinations for this section of the United States will be given at the office of Col. William C. Stephenson, M. C., U. S. A., Federal Building, Chicago. Final examination after four months' course at Army Medical School in Washington, D. C.

Five years' service guaranteed by applicant.

REQUIREMENTS FOR NAVY MEDICAL SERVICE

Requirements for the medical service of the Navy are the same as for the Army except that no internship is required and the candidate is not compelled to serve any prescribed time.

Examinations are held monthly at U. S. Naval Hospital, Great Lakes (North Chicago), Ill.

ADVANTAGES OF ARMY MEDICAL SERVICE—PAY

\$2,000 per year upon joining Army Medical School until captaincy after 5 years, then \$2,640. Majority (last individual promoted after 8 years' service) from \$3,600 to \$4,000.

Lieutenant-Colonel and Colonel receive (after 20 years' service) \$4,500 and \$5,000, respectively; Surgeon-General \$6,000.

Family of medical officer provided for by house or money allowance (\$45 to \$100 per month, according to rank).

Retirement at age of 64 years, on three-quarters' pay.

Allowance of half year's pay given estate in event of death.

Encouragement is given medical officers to develop themselves in research work, surgery, etc.

The National Defense Act of June 3, 1916, will largely increase the present number in each rank, now 21 Colonels, 36 Lieutenant-Colonels and 158 Majors.

ADVANTAGES OF NAVY MEDICAL SERVICE

Rank, allowances, retirement and opportunities for research in the Navy medical service correspond to those in the Army.

ILLINOIS COMMITTEE ON MEDICAL SERVICE FOR THE UNITED STATES ARMY AND NAVY

*Headquarters Room 1123, 25 East Washington Street
Chicago, Illinois*

D. A. K. STEELE, <i>President</i>	JOSEPH P. COBB
ARTHUR I. KENDALL, <i>Sec'y</i>	DEAN D. LEWIS
L. L. MCARTHUR	FREDERICK A. BESLEY
GEORGE E. WYNEKIN	CHARLES E. KAHLKE
WILLIAM L. NOBLE	A. J. OCHSNER
<i>Ex-officio:</i>	ALFRED DE ROULET
FRANKLIN H. MARTIN	RICHARD H. STREET
E. WYLLYS ANDREWS	JAMES F. PERCY
JOHN M. DODSON	WILBUR H. GILMORE.
A. AUGUSTUS O'NEILL	

For further information apply: (For Army) to Col. WILLIAM STEPHENSON, M. C., U. S. A., Room 587, Federal Bldg., Chicago; (For Navy) to P. A. Surgeon NORMAN SULLIVAN, U. S. N., Great Lakes Naval Training Station, Great Lakes, Illinois, or to the Executive Officer of your medical school.

T. B. NOTES

Jerome E. Cook, investigating the results of pneumothorax in the treatment of pulmonary tuberculosis, came to the following conclusions:

1. The complications following artificial pneumothorax are so serious as to contraindicate the procedure in incipient or early favorable cases.

2. In moderately advanced cases or early progressive cases with unfavorable clinical symptoms, such as repeated hemoptysis, high fever, or excessive cough, the method may be tried. In a fair percentage of these cases, improvement will take place, and the patient will apparently be saved. However, protracted observation will materially reduce the number of those cases to whom the method seemed to offer a cure of their tuberculosis.

3. Artificial pneumothorax is not in any sense a cure for consumption. In carefully selected cases it may be productive of some good.—(Interstate Med. Jour., Jan., 1917.)

An infant, living in contact with an open case of pulmonary tuberculosis, practically always becomes infected.

Common Sense and Consumption.—A sanatorium superintendent says: "Doctors would make fewer errors in diagnosis if they depended more on symptoms, and placed less reliance on the physical signs that may be present. Physical signs without symptoms can usually be ignored. Symptoms, however, with or without physical signs, need careful study." In some cases we should make a positive diagnosis on the history and constitutional signs alone, without signs in the lungs. Such cases are not uncommon. Likewise, but rather less often, one can safely make a positive diagnosis on lung signs alone without marked constitutional disturbances. In the vast majority of cases there should be present both signs in the lungs, generally including rales at some time or other, and constitutional signs, such as fever, rapid pulse, subnormal temperature, loss of weight and strength. A hemorrhage, not including minute streaks or flecks of blood in the sputum, always means Tb. until the contrary is proven. This rarely happens. It need not always mean, however, that the patient should give up his work for a long time and go to a sanatorium. The X-ray gives confirmatory evidence which is rarely of great value in diagnosis when taken by itself. Tuberculin tests are of little value and may do harm. Observations of temperature and pulse are very valuable. The most important evidence, and probably the most neglected, is that obtained from a careful and detailed study of the patient, his family history, habits, surroundings and occupation. From the patient's point of view it is better to be safe than sorry, better to undergo a few weeks or months, perhaps, unnecessary treatment as a "lunger" than to linger along in false security until the chances of cure are gone.—*Common Sense and Consumption*, J. B. Hawes, 2nd, Boston Med. and Surg. Journal, July 27, 1916.

Initial Fever.—1. The tuberculin reaction is a specific reaction. When positive it signifies the presence

of an active or latent tbc. focus. Normal individuals cannot be sensitized with tuberculin.

2. In infants tbc. infection always leads to tbc. disease, either mild or severe; in either case there is formation of tubercles, but while in infection the lesions are small, localized and tend to heal, in disease they are more extensive and more advanced. Tbc. infection in infants is invariably associated with fever and signs in the chest and abdomen. In adults tbc. infection may be present without fever or any other signs.

3. Fever is the first sign of tbc. infection in infants. It is sudden in onset, high for 7 to 14 days, remittent and gradually comes down by lysis to about 100, where it remains for about 12 to 20 weeks, with periods of exacerbations and normal temperature.

4. The tuberculin reaction becomes positive at the onset of the fever or a few days later.

5. 30 to 35 per cent of these children survive the infection, since the pathologic lesions may be localized and heal completely.

6. Fourteen per cent of prolonged febrile conditions in infants give a positive von Pirquet reaction. The test should therefore be carried out in every infant who has an idiopathic fever without physical signs.—*M. S. Reuben, Fever—The Initial Signs of Tuberculosis Infection in Infants. Archives of Pediatrics*, Mar., 1916.

RESULTS OF PHYSICIANS' EXAMINATION HELD BY THE ILLINOIS STATE BOARD IN CHICAGO.

Dr. C. St. Clair Drake, secretary, reports the results of physicians' examination held by the Illinois State Board of Health in Chicago, on October 10, 11, 12, 1916, as follows:

The total number of candidates, of whom 88 passed, 27 failed and 8 didn't complete the examination.

PASSED.

College—	Year Grad.	Total No. Passed
Bennett	1915 (1), 1916 (1)	2
Chicago Coll. M. & S.	1915 (3), 1916 (30)	33
Chicago Hosp. Coll. of Med.	1915 (1), 1916 (1)	2
Detroit Coll. of Med.	1904	1
Hahnemann, Chicago.	1916	1
Howard Univ., Washington, D. C.	1914	1
Indiana University.	1916	1
Jenner	1916	2
Johns Hopkins	1915	1
Loyola	1916	18
Medical College of Virginia.	1906	1
Northwestern	1916	2
Rush	1903 (1), 1914 (1), 1916 (9)	11
St. Louis University.	1914	1
University of Illinois.	1916	6
University of Iowa.	1907 (1), 1916 (1)	2
University of Michigan.	1916	1
University of Pennsylvania.	1903	1
Vanderbilt University	1916	1
		88

FAILED.

College—	Year of Grad.	Total No. Failed
Bennett Med. Coll.	1910 (1), 1915 (2), 1916 (3)	6
Chicago Coll. Med. & Surg.	1915 (1), 1916 (7)	8

Chicago Hosp. Coll. of Med.....	1915 (2), 1916 (2)	4
Female Institute, Charcow.....	1914	1
Hahnemann, Chicago	1915	1
Hospital, Louisville	1904	1
National Univ., St. Louis.....	1916	1
National Univ. of Greece.....	1905	1
Reliance Med. College.....	1911	1
St. Louis Coll. P. & S.....	1910	1
University of Athens.....	1884	1
University of Pennsylvania.....	1896	1
		27

MEDICAL SOCIETY OF THE MISSOURI VALLEY

Semi-Annual Meeting, Keokuk, Iowa,

March 22, 23, 1917.

The meeting of the society at Keokuk, Iowa, March 22-23, promises to be of unusual interest, both in relation to scientific program as well as to the social features of the entertainment. All the members of the Tri-State Medical Society have been invited to attend and a number of them will take part in the program. The merger of the Tri-State Society with the Missouri Valley will be discussed and a large attendance is therefore anticipated.

PRELIMINARY PROGRAM.

"Pathological Changes in the Central Nervous System Due to Possible Infections from the Teeth and Tonsils," Dr. George W. Hall, Chicago.

"Magnesium Sulphate Poisoning," Dr. Ralph W. Webster, Chicago.

"Advantages of the Two-Stage Prostatectomy," Dr. Robert H. Herbst, Chicago.

"Hydrotherapy in the Sanitarium Treatment of the Nervous and Insane," Dr. Sidney Wilgus, Rockford, Ill.

"The Etiology and Treatment of Hemorrhoids," Dr. J. Rawson Pennington, Chicago.

"Diagnosis and Symptomatology of Hemorrhoids," Dr. Franklin A. Turner, Rockford.

"Sex Gland Implantation," Dr. G. Frank Lydston, Chicago.

"Recent Advances in the Surgery of Gall-Stone Disease," Dr. Daniel N. Eisendrath, Chicago.

"Ethics in the Practice of Surgery," Dr. Charles H. Parkes, Chicago.

"Perthe's Disease," Dr. C. B. Francisco, Kansas City.

"Fibroid Tumors and Their Fatal Complications," Dr. Herman E. Pearse, Kansas City.

"First Aid to Spinal Injuries," Dr. Carl E. Black, Jacksonville, Ill.

Lantern Slide Lecture on "Cleft Palate and Harelip," Dr. Wm. L. Shearer, Omaha, Nebr.

"The Percy Cautery in Inoperable Carcinoma of the Cervix," Dr. Caryl A. Potter, St. Joseph.

"Tobacco and Abdominal Pain," Dr. L. W. Littig, Davenport, Iowa.

"Pathology of Traumatic Wounds," Dr. O. C. Morrison, Carroll, Iowa.

"The Pelvic Fasciae," Dr. C. H. Magee, Burlington, Iowa.

"Treatment of Acute Perforating Gastric and Duodenal Ulcers," Dr. L. A. Dermody, Omaha.

"Acute Endocarditis," Dr. M. W. Flothow, Woodbine, Iowa.

"Why Cesarean Section?" Dr. A. B. Somers, Omaha.

"Abnormalitis of the Heart as Demonstrated by Roentgenoscopy," Dr. John W. Shuman, Sioux City, Iowa.

"Late Results of Operation in Hip Joint Disease," Dr. H. Winnett Orr, Lincoln, Nebr.

"Abdominal Pain in Early Childhood," Dr. Newell Jones, Omaha.

Subject to be announced later, Dr. Julius Frischer, Kansas City.

Public Health

CONFERENCES ON INFANTILE PARALYSIS.

The latter part of January, the State Board of Health began a series of clinical conferences on infantile paralysis in about thirty of the cities of the state, these cities being chosen in view of their relation to the foci of this disease as it appeared in 1916.

The County Medical Societies, with negligible exceptions, are co-operating very earnestly in these conferences, as are also the local health authorities.

The emphasis of the clinical work has been to show how deformities may be prevented and function restored as far as possible. The possibilities and technique of neuro-muscular re-education as applied to these cases have been especially illustrated.

A public address with lantern slide illustrations has been given in each center, and other addresses on various phases of poliomyelitis have almost uniformly been desired by the local profession.

The public meetings have called out representative people, and in most instances large audiences have been present. Up to date about 200 patients have been seen, and we estimate that about one-half the territory has been covered, i. e., the southern part of the state.

We believe it to be easily possible for the local profession to receive a stimulus and a direction which will enable it to successfully cope with the after effects of this malady, and to see to it also that those needing special orthopedic help shall be directed to proper sources.

The value of this work to preventive medicine

cannot be lightly estimated. Hope to the people in general also follows, and intelligence to which they are assisted will make for their successful co-operation in this and other public health matters.

Conferences so far have been held at Atwood, Tuscola, Decatur, Mattoon, Olney, Harrisburg, Cairo, Benton, East St. Louis, Quincy, Springfield, Galesburg, Kewanee, La Salle, Ottawa, Streator.

Those remaining are Joliet, Chicago, Rock Island, Freeport, Oregon, Elgin, Aurora, Kankakee, Bloomington, Champaign, Peoria.

Poliomyelitis clinical conferences will be conducted by the State Board of Health during the month of March at the following points:

Streator—March 3-6.

Joliet—March 7.

Chicago (for cases outside Chicago)—March 8-13.

Waukegan—March 12.

Rock Island—March 14-15.

Freeport—March 16.

Oregon—March 17.

Rockford—March 19.

Elgin—March 20-21.

Aurora—March 22-23.

Kankakee—March 24.

Champaign—March 26-27.

Bloomington—March 28-29.

Peoria—March 30-31.

NOTES ON LEGISLATION AFFECTING HEALTH ACTIVITIES IN THE STATE OF ILLINOIS.

Of most absorbing interest in the legislature within the past few weeks has been the so-called Consolidation Bill. This administration bill places in nine main departments all of the executive administration functions of the state with the exception of the State University. At the head of each major department is to be a director who will be in executive charge of the department, and who will act as an advisor to the governor. The arrangement is similar to the federal cabinet.

To those interested in public health it will be gratifying to learn that one of these major departments is the State Department of Public Health, with a director at its head and an advisory board to assist in determining matters of general policy. The department is truly a department of public health and will be unencumbered by other functions that do not have a strictly public health bearing. A notable change over the organization of the old State Board of

Health is the separation from the health activities of the state of the administration of the medical practice act, which, together with a number of other examining bodies, has been placed in the Department of Registration and Education.

No changes of importance have been made in the health laws of the state. The bill provides that existing laws governing the old State Board of Health are to be placed under, and administered by the State Department of Public Health. There has been a gain, in that certain functions which the board has hitherto performed, but for which it had only general authorization, are now specifically mentioned. Under this head is included the authority to render advice in connection with public water supplies, water purification works, sewerage and sewage treatment works, and, to have supervisory powers over the operation of water works and sewerage works. It would have been desirable to have supervision over the installation of these works, but it is believed that by virtue of its authority over operation, the advice and approval of the State Department of Public Health will be sought in connection with new installations.

There is a bill now pending introduced by the Master Plumbers' Association of Illinois looking toward a more rigid application of the state plumbing laws. This bill does not modify existing law, except in the matter of its enforcement. Hitherto there has been no state agency that could look after the enforcement of the plumbing law. The new bill proposes the appointment of a state supervisor of plumbing, whose duty it shall be to see that plumbing codes are enforced, that plumbers' examination boards are properly established as required, and that plumbing examinations are properly conducted. In addition to this, the law provides that local plumbing codes must be adopted only with the advice of the State Department of Public Health. This item imposes new and additional duties on the State Department of Public Health which it will have to meet by securing a sufficient appropriation (estimated at about \$4,000 per annum) for the employment of a plumbing expert, together with necessary stenographic assistance, traveling expenses, office furniture and supplies.

The Bureau of Sanitation, which includes the engineering activities of the State Department of Health, is asking for approximately \$60,000

per annum, in order to properly perform various duties that must be undertaken if the regulation of sanitation and public health in Illinois is to be at all effective and in conformity with practice obtaining in other states. This bureau includes among its activities, supervision over public water supplies and sewerage systems; the prevention of stream pollution; inspection of schools and other public buildings; examination of plans for county tuberculosis hospitals; municipal and rural sanitary surveys; regulation of sanitation on interstate carriers and in work camps; studies of methods for collecting and disposing of city wastes; studies of methods of street cleaning; maintenance of chemical and biological laboratories for the examination of water, sewage and wastes; studies of methods of heating and ventilating; preparation of plumbing codes and investigation of plumbing methods and material, and conduct of publicity work, including public addresses, exhibits and surveys.

Included with the appropriations is a sum to cover the purchase and operation of a railroad car to be used in connection with sanitary surveys, especially in rural districts. This car will be provided with office room, living quarters, laboratory and exhibit space. Such a car will not only prove an effective means for interesting the public in health conservation and the work of the State Department of Public Health, but will also greatly facilitate and expedite the work of making sanitary surveys for which at the present time there is a great demand throughout the state.

From the foregoing statement of the work which the State Department of Health intends to undertake, it will be obvious that the appropriation requested for sanitary work is a modest one, and in point of fact every item was carefully considered and not a dollar has been requested that does not seem absolutely necessary for obtaining tangible results.

MEDICAL INTERESTS AMPLY CONSERVED IN THE CONSOLIDATION BILL

STATE DEPARTMENT OF HEALTH AND THE DEPARTMENT
OF REGISTRATION AND EDUCATION TO TAKE OVER
WORK FORMERLY PERFORMED BY THE
STATE BOARD OF HEALTH

The consolidation of the state governmental agencies will become a fact on July 1, 1917. The new "State Administrative Code" has passed the House and the

Senate with but two dissenting votes. When the Governor attaches his signature to the bill, it becomes a law.

No greater piece of fine constructive legislation has been achieved in Illinois in many decades. The keenest observers who have studied the measure are united in the opinion that this piece of legislation will accomplish for the people in the way of greater efficiency in government all that its most earnest advocate has promised. The credit for this achievement belongs to Governor Frank O. Lowden, who, against great odds and contrary to the prophecies and to the wishes of some politicians who always have been regarded as astute and powerful factors in legislative circles, has carried the chief of his campaign promises to a successful and early conclusion.

Certain it is that the medical profession has reason to rejoice in the new order of things. The recognition accorded the State Board of Health, the body most representative of the medical profession in the state government, has been such as to leave no doubt of the estimate placed upon important services of that body. The State Board of Health is but one of more than one hundred separate state agencies which have been consolidated in ten major departments, yet out of the ten departments it gets one major department wholly—the Department of Public Health—and it becomes the major factor in another department—the Department of Registration and Education.

Elsewhere in this issue the new Department of Health has been discussed. Here we shall briefly outline the rights, powers and duties of the new Department of Registration and Education.

Let us quote from the provisions of the Consolidation bill as follows:

The Department of Registration and Education, officered by a Director of Registration and Education, salary \$5,000 per annum; an Assistant Director, salary \$3,600 per annum; a Superintendent of Registration, salary \$4,000 per annum.

Neither the director, assistant director, superintendent of registration nor any other executive and administrative officer in the department of registration and education shall be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, architecture or structural engineering, either as teacher, officer or stockholder, nor shall he hold a license or certificate to exercise or practice any of the professions, trades or occupations regulated.

The Department of Registration shall have power to exercise the rights, powers and duties vested by law in the State Board of Education; the boards of trustees of four state normal schools; the Board of Veterinary Examiners; Board of Horseshoers; Board of Examiners of Architects; Board of Examiners of Structural Engineers; State Board of Health relating to the practice of medicine or any of its branches; State Board of Health relating to the regulation of embalming and licensing of embalmers; State Board of Pharmacy; State Board of Dental Examiners; State Board of Nurses Examiners; State Board of Optom-

etry; State Board of Barbers Examiners; State Geological Survey; State Water Survey; State Museums, State Entomologist.

The Department of Registration and Education shall, whenever the several laws regulating professions, trades and occupations which are devolved upon the department for administration so require, exercise, in its name, but subject to the provisions of this act, the following powers:

1. Conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade or occupation for which an examination is held; and pass upon the qualifications of applicants for reciprocal licenses, certificates and authorities;

2. Prescribe rules and regulations for a fair and wholly impartial method of examination of candidates to exercise the respective professions, trades or occupations;

3. Prescribe rules and regulations defining, for the respective professions, trades and occupations, what shall constitute a school, college or university, or department of a university, or other institutions, reputable and in good standing and to determine the reputability and standing of a school, college or university, or department of a university, or other institution, reputable and in good standing by reference to a compliance with such rules and regulations;

4. Adopt rules providing and establishing a uniform and reasonable standard of maintenance, instruction and training to be observed by all schools for nurses which are to be deemed reputable and in good standing and to determine the reputability and good standing of such schools for nurses by reference to compliance with such rules and regulations;

5. Establish a standard of preliminary education deemed requisite to admission to a school, college, or university, and to require satisfactory proof of the enforcement of such standard by schools, colleges and universities;

6. Conduct hearings on proceedings to revoke or refuse renewal of licenses, certificates or authorities of persons exercising the respective professions, trades or occupations, and to revoke or refuse to renew such licenses, certificates or authorities;

7. Formulate rules and regulations when required in any act to be administered.

None of the above enumerated functions and duties shall be exercised by the department of registration and education, *except upon the action and report in writing of persons designated from time to time by the director of registration and education to take such action and to make such report, for the respective professions, trades and occupations as follows:*

For the veterinary practitioners, three competent veterinary surgeons, not more than two of whom shall be graduates of the same veterinary college, and neither of whom shall be connected with any veterinary college in any capacity;

For horseshoers, five persons, consisting of three practical master horseshoers, who have been for at least three years prior to their designation engaged in the occupation of horseshoeing in this State, and two journeymen horseshoers, who have been for at least three years prior to their designation engaged in the occupation of horseshoeing as journeymen horseshoers in this State;

For the architects, five persons, one of whom shall be a member of the faculty of the University of Illinois, and the other four of whom shall be architects residing in this State, who have been engaged in the practice of architecture at least ten years;

For the structural engineers, five persons, one of whom shall be a professor in the civil engineering department of the University of Illinois, and the others of whom shall be structural engineers of recognized standing, who have had not less than ten years' practical experience, then practicing as structural engineers in this State;

For the medical practitioners, embalmers and midwives, five persons, all of whom shall be reputable physicians licensed to practice medicine and surgery in this State, no one of whom shall be an officer, trustee, instructor or stockholder or other-

wise interested, directly or indirectly, in any medical college or medical institution. For the purpose of preparing questions and rating papers on practice peculiar to any school, graduates of which may be candidates for registration or license, the director may designate additional examiners whenever occasion may require;

For the pharmacists, five persons, each of whom shall be a competent registered pharmacist, in the State, and shall have had ten years' practical experience in the dispensing of physicians' prescriptions since such registration;

For the dentists, five persons, each of whom has been a licensed practitioner of dentistry or dental surgery in this State for a period of five years or more, and no one of whom is in any way connected with or interested in any dental college or dental department of any institution of learning;

For the registered nurses, five persons, each of whom is a registered nurse in this State and has been graduated for at least a period of five years from a school for nurses in good standing, and, during the course of training, has served for two years in a general hospital, and three of whom shall have had at least two years' experience in educational work among nurses;

For the optometrists, five persons from among such practicing optometrists of the State as have had not less than five years' practical experience in optometry, no one of whom is a member of any optical school or college or instructor in optometry or person connected in any way therewith, or is a manufacturer, jobber or jobbing representative;

For the barbers, three practical barbers, each of whom has been for at least five years preceding his designation engaged in the occupation of barbering in this State.

The action or report in writing of a majority of the persons designated for any given trade, occupation or profession, shall be sufficient authority upon which the director of registration and education may act.

In making the designation of persons to act for the several professions, trades and occupations, the director shall give due consideration to recommendations by members of the respective professions, trades and occupations and by organizations therein.

Whenever the director is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate or authority, he may order re-examinations or rehearings by the same or other examiners.

Sec. 61. All certificates, licenses and authorities shall be issued by the department of registration and education, in the name of such department, with the seal thereof attached.

Sec. 62. Unless otherwise provided by law, the functions and duties formerly exercised by the State entomologist, the State laboratory of natural history, the State water survey, and the State geological survey and vested by this Act in the department of registration and education, shall continue to be exercised at the University of Illinois in buildings and places provided by the trustees thereof.

Sec. 63. The board of natural resources and conservation advisors shall advise the director of registration and education in all matters pertaining to natural history, geology, waters and water resources, forestry and allied research, investigational and scientific work.

The board of State museum advisors shall advise the director of education and registration in all matters pertaining to maintenance, extension and usefulness of the State museum.

CONTAGIOUS DISEASE SITUATION IN ILLINOIS

SUMMARY FOR FEBRUARY

During the month of February smallpox appeared in a number of communities throughout the state, the outbreaks being difficult to control in a number of instances, owing to the prevailing mild type of the disease. The communities in which the disease appeared difficult to control were Crouch township, Hamilton county, where it had existed for some time unrecognized, and in the mining communities of Bulpit

and Kincaid, Christian county. The board took charge of the situation at these places with the epidemiologist directing the work of suppression of the outbreak, assisted by quarantine officers. The local authorities and the officials of the miners' union extended full co-operation.

Diphtheria.—The disease, as in past winters, existed in many communities, no outbreak of any considerable note, however, appearing anywhere in the state. As much antitoxin, however, was used in the month as during any month during the last half-dozen previous years. In this connection it may be noted that the board is now supplying antitoxin in 10,000 unit packages.

Scarlet Fever.—Outbreaks of scarlet fever in various parts of the state were somewhat difficult to control owing to the mildness of many of the cases and the consequent inability of the quarantined families to understand why the full minimum period of quarantine should be enforced. Some 35 or 40 cases of the disease appeared in Carlinville, many among the school children. All public meetings were prohibited and a nurse was engaged especially to examine the school children. The aid of this board was extended to the city authorities by placing quarantine officer in charge of the enforcement of quarantine regulations and of the order confining children under 16 years of age to their own premises. The vigorous efforts of the city, state and school authorities resulted in the prompt suppression of the outbreak.

Typhoid Fever.—The only communities in which a large number of cases of the disease developed during the month were Waukegan and North Chicago, where there are some 80 cases. An investigation by the Sanitary Engineering Bureau and the State Epidemiologist is now in progress. The public water supply appears to be the source of the trouble.

Measles.—The disease appeared in epidemic form in many communities in the state. Outbreaks were difficult to control owing to the fact that the general public does not as yet fully realize the necessity for the strict enforcement of quarantine regulations.

Whooping Cough.—The disease did not appear as prevalent as at this time last year, although some cases were reported in a number of communities.

Chickenpox.—The disease appeared in a number of communities but nowhere in epidemic form.

Cerebrospinal Meningitis.—Exceedingly few cases were reported, no more than one in any community with the exception of Chicago.

Acute Poliomyelitis.—But 9 cases of the disease were reported during the month, of which 2 were in the city of Chicago.

PENDING LEGISLATION OF INTEREST TO PHYSICIANS

At the present time there are a number of bills pending in the sitting Illinois General Assembly which are of peculiar interest to physicians. The following summary of the pending legislation should be carefully read by members of the medical profession and upon measures in which the profession is interested

each and every physician should offer an expression of opinion to his representatives and senator, either in support of a commendable piece of legislation or in opposition to a bill the provisions of which are deemed unfair or unwise.

The medical profession never will be given serious consideration in legislative circles until it evidences a deeper and a more intelligent interest in legislative matters. Keep in touch with your representatives in the General Assembly and remember that the best way to develop influence with a legislator is by not forgetting to offer words of commendation when such are due. Don't dissipate your influence by reserving action for those measures which you wish to see opposed.

MEDICINE

Osteopathy.—House Bill 266, introduced February 7 by Rep. Guy Guernsey of Chicago. Now in House Judiciary Committee. Hearing, March 13. Amends medical practice act in manner which gives osteopaths right to practice medicine and surgery in all their branches, but fails to require educational standards equal to those required of physicians and surgeons. Also provides that certain osteopaths now holding "Other Practitioner's" certificates may acquire this right simply on surrender of their "O. P." certificate and payment of transfer fee of five dollars.

This is a very bad bill and if its supporters insist upon pushing it, steps must be taken to defeat it.

Conferences have been held with representatives of the state osteopathic association and it has been agreed that a new bill shall be drafted and substituted for the bill previously introduced. The new bill will provide for equal educational standards for all practitioners of the healing art. Any bill short of this requirement should be universally and vigorously opposed by the medical profession.

Optometry.—House Bill 366, introduced by Rep. Roderick of Chicago. Referred to House Committee on Judiciary. Amends the optometry act with respect to reciprocity with other states in optometry licensure. Provides that it shall be unlawful for anyone to falsely assume title "registered optometrist" or any other title or degree or to represent himself to be a registered optometrist for the purpose of testing and examining eyes and recommending glasses therefor; also that it shall be unlawful for any registered optometrist to advertise on or practice his profession in any name other than his own or fraudulently to advertise or represent the qualities of eye glasses.

Proponents of this amendment are actively lobbying for its passage.

Prescriptions.—House Bill 300, introduced by Rep. Frisch of Springfield. Referred to Committee on Judiciary. Amends Pharmacy Act by providing that it shall be unlawful for any person to counterfeit or forge the name of a licensed physician, dentist or veterinarian to a prescription or order.

Chiropody.—House Bill 226, introduced by Rep. Igou of Chicago. Referred to House Committee on License and Miscellaneous. Reported out with agreed amendments and is now on second reading in the House.

Will require further amendments placing authority for administration in Department of Registration and Education rather than in State Board of Health, as bill now reads. Also Senate Bill 135, introduced by Senator Barr of Joliet. Referred to Senate Committee on Judiciary. Reported out with agreed amendments. (Same bill as introduced in House.)

Provides for examination and licensing of chiropodists by State Board of Health under such rules and regulations as the board may determine. Defines chiropody as "the local medical, mechanical or surgical treatment of ailments of the human foot, except the correction of deformities or injuries through the use of the knife, amputation of the foot or toes, or the treatment of injuries of the human foot, or the use of anesthetics other than local, or the use of drugs or medicines other than local antiseptics."

On or after July 1, 1917, all persons practicing chiropody in Illinois must be licensed. Physicians are exempted from provisions of the act.

This bill is being vigorously pushed by its supporters.

Poisons.—Senate Bill 81, introduced by Senator Austin. Now on passage in Senate. Amends the law in relation to criminal jurisprudence, requiring druggists to label with word "poison" each phial or parcel containing bichloride of mercury, which container shall be triangular in shape. Penalty, \$50 fine for each sale not so labeled.

Also House Bill 139, introduced by Rep. Thon of Oak Park. Referred to Committee on License and Miscellany. Regulates the manufacture, sale or other disposal of poisonous fly paper or poisonous fly killer and provides penalties.

HEALTH

Public Health Districts.—Senate Bill 28, introduced by Senator Coleman, and House Bill 318, introduced by Rep. Scanlan. Similar bills, both now in Committee. Provides for consolidation of municipalities and townships for purpose of organizing and maintaining an efficient health service. Special tax not to exceed four mills on the dollar, annually, may be levied to create "Public Health Fund." Subject to referendum.

The aims and purposes of this bill are commendable but the bill has been very poorly drawn and must be re-drafted. A substitute bill in proper form will be offered at an early date.

Health Certificates for Marriage.—Senate Bill 151, introduced by Senator Austin. Provided that before marriage license could be issued, both parties must file an affidavit showing that they are not afflicted with any communicable venereal disease, together with certificate, signed and sworn to by physician, that such parties have been personally examined by him within 15 days and that he believes and has found the applicants to be in good health. Penalty, \$100 to \$1,000, or imprisonment, or both.

This bill was overwhelmingly defeated in the Senate. A similar measure is pending in the House, but, in view of the character of the amendments tacked on

to it in committee, it is sure to meet defeat when it comes up for consideration.

One of these amendments provides that both applicants for a marriage license "must be free from any venereal disease, scrofula, tuberculosis, Bright's disease, diabetes or any other contagious or communicable diseases."

Extending Postal Franking Privilege to Reports of Contagious Diseases, Births and Public Health Literature.—Senate Joint Resolution 5, introduced by Senator Cornwell on request of State Board of Health. A memorial to the Congress of the United States to authorize the franking of all reports of births, deaths and communicable diseases to the proper officer and all printed matter of an educational character issued by the State Board of Health to the people of the state in which such matter is issued.

Similar resolutions have been introduced in all other states where general assembly is now sitting.

This resolution has been referred to the Senate Committee on Public Health, Hygiene and Sanitation, of which Senator (Doctor) Latham is chairman. Senator Latham should be asked to advance it.

Vital Statistics.—Senate Bill 218, introduced by Senator Buck of Monmouth, and House Bill 361, introduced by Rep. Perkins of Lincoln. Amends act requiring reports of births and deaths by providing that one complete set of records shall be turned over to the county clerks of the respective counties within 10 days after the close of each month, instead of at close of year as at present.

Cold Storage Regulation.—Senate Bill 4 and House Bill 223, introduced by Senator Baldwin and Rep. Hicks. Both bills still in Committees.

Regulates cold storage articles of food by requiring that every person or firm operating a cold storage warehouse shall procure from the State Food Commissioner a license for that purpose. Every licensee shall keep records of the articles of food received in and withdrawn from his cold storage warehouse and shall submit an itemized monthly report to the State Food Commissioner. The State Food Commissioner shall have access to all such warehouses at reasonable times for the purpose of inspection and supervision and may revoke the license of any warehouse which is found to be in an insanitary condition.

Defines the term "cold storage" and "articles of food." Requires that every article of food shall be stamped with the dates when received and removed from cold storage and that any article which has been held for a period of thirty days or over shall be conspicuously marked "cold storage goods." Authorizes the State Food Commissioner to make all necessary rules and regulations to carry this Act into effect and provide penalties for violation thereof.

HOSPITALS

Hospitals Brought Under Operation of Eight-Hour Law.—Senate Bill 90, introduced by Senator Curtis and referred to Senate Committee on Labor, Mines and Mining; also similar measure, House Bill 126, introduced by Rep. Carter and referred to Committee on Industrial Affairs.

Amends sections 1, 2, 3, 4 and 5 of "An Act to regulate and limit the hours of employment of females in any mechanical or mercantile establishment, or factory, or laundry, hotel or restaurant, or telegraph or telephone establishment or office thereof, or in any place of amusement, or by any express or transportation or public utility business, or by any common carrier, or any public institution, incorporated or unincor-

porated, in this State, in order to safeguard the health of such employees, to provide for its enforcement and a penalty for its violation," in force July 1, 1909, and adds five new sections.

The law, as it now stands, provides that females in certain establishments shall not work more than ten hours in any one day. The bill provides that they shall not work more than eight hours during any one day, or more than forty-eight hours in any week. It adds hospitals to the establishments enumerated and provides that its regulations shall not apply to graduate nurses or nurses assigned to services in operating rooms in hospitals. It provides more stringent rules for the enforcement of the act, and greater penalties for its violation.

House Committee now holding public hearings with representatives of all affected employments lodging vigorous protests. Bill being strongly pushed by its proponents.

New State Hospitals.—Senate Bill 101, introduced by Senator Hughes, provides for the establishment of a surgical hospital for crippled children to be operated in conjunction with the Illinois Charitable Eye and Ear Infirmary at Chicago. Senate Bill 102 provides for an appropriation of \$452,500 for the establishment and maintenance of this hospital. Both bills still in committee.

House Bill 379, introduced by Rep. Burns, provides for the establishment of a State Psychopathic Hospital.

House Bill 380, introduced by Rep. Burns, provides for the establishment of a home for feeble minded.

The two last-named bills are in the House Committee on Appropriations.

Correspondence

A COMPREHENSIVE PATHOLOGICAL AND RESEARCH LABORATORY FOR COOK COUNTY HOSPITAL.*

J. RAWSON PENNINGTON, M. D.,
CHICAGO.

To the Honorable,

The Board of Commissioners
of Cook County.

Gentlemen: On behalf of the medical profession of Cook county, I want to thank you for the courtesies which you have so graciously extended us this afternoon.

At a meeting of Chicago Medical Society last Wednesday evening, January 17, the following resolution was unanimously adopted:

Resolved, That a committee be appointed for the purpose (1) of conferring with the president and members of the Board of Commissioners of Cook County concerning ways and means for constructing and equipping a comprehensive pathological and research laboratory or laboratories for Cook County Hospital, and to urge upon them the necessity of early action. (2) For the purpose of finding ways and means to arouse enthusiastic interest among members of the profession and the public concerning the great importance and the necessity of these laboratories.

This resolution speaks for itself. The purpose of our appearing before you this afternoon is to ask you, the president, and the members of the Board of Commissioners of Cook county, to request the public to lend a helping hand in building the necessary laboratories for Cook county hospital.

It is obvious that there is a great and urgent need for a new pathological and research laboratory in Cook county hospital. While this is one of the largest hospitals in the world, and she is overfull of patients practically all of the time, yet her morgue and laboratory are hardly worthy the name. What does this mean? It means that a vast amount of rare and invaluable pathological material is literally going to waste simply for the want of a building in which to preserve, for study and use, these rare and invaluable specimens—a condition almost unbelievable. Who are the losers? You and I; in fact, the whole world.

The great medical question today is not that of curative medicine, but preventive medicine. To study and learn preventive medicine an up-to-date pathological and research laboratory is not only essential, but absolutely necessary. Moreover, curative medicine is the commercial side of medicine, while preventive medicine is the altruistic side. We, as doctors, because of necessity in many instances, doubtless, have been more interested in the commercial or egoistic phase of medicine, than we have been in the altruistic phase. As evidence of this fact, we see hospitals and colleges everywhere for curative medicine, but how many institutions can you point out that have been erected for preventive medicine? Yet, this subdivision of medicine unquestionably concerns mankind most. Had a larger percentage of these institutions been erected and equipped for the study of preventive medicine, and placed under the supervision of competent directors, doubtless, today there would be thousands of human beings living and enjoying life who are now either chronic invalids or in their graves. And, mark you, when the public fully realizes this, it will not be necessary to request it to lend a helping hand in building these institutions; it will demand their building at once, and insist that a competent director be placed in charge. Furthermore, that the doors be thrown wide open to every physician in Cook county

*A plea delivered before the Board of Commissioners of Cook County, at the County Building, Chicago, January 24, 1917.

gratis, and he will be urged to take advantage of the opportunities offered therein.

In my opinion, Cook county should have an unexcelled laboratory or laboratories for the following reasons:

1. Chicago, the county seat of Cook county, is the center of population of the United States.

2. There are more people within a radius of 500 miles from Chicago than any other point in the United States.

3. Chicago is the center of the greatest agricultural country in the world.

4. Chicago's growth is the marvel of the world.

Moreover, recently millions of dollars have been given for medical education in Chicago by outsiders. Why given to Chicago? (1) Because the donors unquestionably desire to place their money where it will yield the greatest medical good for mankind. (2) Because they see in the clinical and other advantages, and in the medical timber in Chicago, the greatest medical possibilities in America. And, I might say in this connection, that a few years ago a well-known eastern surgeon said, "Chicago, because of her clinical advantages and the intelligence and enthusiasm of her physicians, is destined to be the medical center of medical education in this country, if not of the whole world." The following are some of the evidences of the keen foresight and mature judgment of this eminent surgeon.

1. Chicago is the home of modern intestinal surgery.

2. Chicago has extended and popularized that great question "focal infection" in medicine.

3. Last, but not least, the indications are that Chicago is the home of the serum, and probably the micro-organism of that dreaded disease—infantile paralysis.

In conclusion, I beg to state that if the foregoing prophecy is to be realized, it is imperative that we have an adequately equipped pathological and research laboratory in Cook county hospital.

Therefore, in view of the foregoing and for many other reasons, and on behalf of the medical profession of Cook county, I trust you gentlemen will see your way clear, and will use your best efforts in securing for our county hospital a comprehensive pathological and research laboratory.

PYELITIS TREATED SUCCESSFULLY WITH SILVOL.

(Continued from page 183)

On June 14 the renal pelvis received a 5 per cent. Silvol irrigation. Repeated on the 17th. On 24th and 27th a 10 per cent. irrigation was applied. On the latter date there were 15 to 20 pus cells to the field in the urine from the right kidney and 1 to 2 in the left kidney. On July 1 a 15 per cent. irrigation was used. On the 5th a 15 per cent. irrigation was used and two fluidrams retained. The right kidney's urine contained 2 to 3 pus cells, a few red blood corpuscles (traumatic) and no bacteria. There were no pus cells or bacteria from left kidney. On the 8th a 15 per cent. irrigation was used. On the 13th a 15 per cent. solution again used and there were no pus cells or bacteria from either kidney. From the 15th to the 28th daily bladder irrigations of 20 per cent. Silvol were made. The patient left the hospital on the 28th. I saw the patient again on August 17. A cystoscopic examination was made and the bladder and ureters were found normal. The catheterized urine from each kidney still contained a few pus cells, but was free from bacteria and otherwise normal. On October 10 the patient was again examined and both kidneys were found to be entirely free from pus and bacteria.

Conclusion: In conclusion I wish to say that I consider Silvol one of the most efficient silver-salt preparations the urologist has at his command. Given by means of ureteral catheterization, it gives excellent results in all cases of pyelitis regardless of the type of bacterial infection present. Its non-irritating and non-toxic properties are especially to be commended. In pyelography a 25 per cent solution produces a most beautiful outline of the kidney pelvis and does not cause the patient any discomfort whatsoever.

LOW ESTIMATE PLACED ON PHYSICIAN'S BUSINESS ABILITY.

Mr. A. S. Comynn Carr in his book on National Insurance (Health Insurance) quoting some of the people in England says that physicians are "amiable weaklings in business matters" and "easily gulled by piteous tales and flattering remarks about the magnanimity of the profession."

The maintenance of health is the first duty of the patriotic American?

Exercise in the open air cures and prevents many ills?

Society Proceedings

COOK COUNTY.

CHICAGO MEDICAL SOCIETY

Scientific Meeting, January 24, 1917

The President, Dr. A. Augustus O'Neill, in the Chair

APPENDICITIS IN PREGNANCY

Dr. Aimé Paul Heineck summarized as follows: 1. Appendicitis, acute or primary, chronic, relapsing or recurrent, complicates pregnancy with greater frequency than is believed. 2. It occurs in single, twin, first, early and late pregnancies; in primiparæ, dentiparæ and multiparæ; at all periods of the child-bearing age, and at all periods of gestation. 3. Gestation exerts no untoward influence upon the normal appendix. 4. Appendicitis and unilateral or bilateral tubal pregnancy are frequently mistaken for each other. 5. In appendicitis, ectopic pregnancy, or combined appendicitis and ectopic pregnancy of obscure symptomatology, it matters not whether you are certain or in doubt as to the real diagnosis, the salvation of your patient lies in early and timely operative treatment. 6. During gestation every type of appendicitis may occur. 7. Adhesion formation is a very important complication. 8. The difficulties in diagnosing appendicitis in the pregnant are the same as in the non-pregnant. 9. Pregnancy increases the fatality of appendicitis. Early surgical intervention gives a good prognosis, and the earlier the better. 10. The morbidity and mortality of appendicitis in pregnancy are the morbidity and mortality of delay in applying efficient surgical treatment. 11. In the majority of cases surgically treated, there is no interruption of pregnancy, and when it does occur, it is not due directly to the operation. 12. All cases of active, latent or chronic or previous appendicitis, calls for operation during pregnancy. 13. The operation is the same as in the non-pregnant state; also postoperative treatment.

THE KIDNEY IN OBSTETRIC ECLAMPSIA

Dr. W. A. Newman Dorland after reviewing the literature and discussing the kidney in pregnancy, the theories of the causation of the kidney of pregnancy, the starvation of the renal cells as a cause of urinary suppression, the arterial tension in eclampsia and the pre-eclampsia toxemia, the author drew the following conclusion: 1. The history of pregnancy, so-called, is not a primary condition, but is secondary to vascular changes in the mother's body. 2. The primary change in the pre-eclamptic toxemia is a steady accumulation in the maternal blood, or a sudden influx of noxious matters of as yet undetermined origin. 3. These toxins immediately produce an irritation of the arterioles of the whole body with a consequent vasomotor spasm and a rise of arterial tension. 4. The arterioles of the renal cortex share in this general vasomotor contraction and prevent the flow of blood to the renal cells. 5. The renal cells, being thus de-

prived of their blood supply, show all the manifestations of tissue starvation, including a suppression or total abolition of their eliminative function. 6. There is no breaking down of the renal tissue with permanent injury to the vital structure of these organs in this disease. 7. The correction of the vasomotor spasm will promptly restore the renal function by re-establishing a flow of blood to the renal cells. 8. We have, consequently, in all cases of rising arterial tension in pregnant women, an urgent indication for the early administration of vaso-paralyzants, especially glonoin and veratrum viride. 9. The secondary action of these drugs is powerfully diuretic when the ordinary diuretics fail to act.

TREATMENT OF CHRONIC OSTEOMYELITIS BY SKIN FLAP AND ADHESIVE PLASTER METHOD

Dr. Emil B. Beck read a paper with this title, in which he spoke of the treatment of that type of osteomyelitis, which had passed through its acute and subacute stages after prolonged surgical treatment.

He had adopted a plan in dealing with these cases which proves most satisfactory. He first tried a most conservative treatment, namely, the injection of bismuth paste, and to his satisfaction he found he could clean up at least sixty per cent of the most resistant cases without the use of any sharp cutting instrument, not even the aid of which is considered a most harmless instrument, the probe. Here he entered a protest against the indiscriminate use of the probe. The probe, no doubt, at times, is a valuable diagnostic measure, but occasionally it misleads and indicates operation which may become very disastrous, and hence the harm far outweighs the good which is derived from it.

The main objects in planning the operations were (1) to expose the diseased area by an adequate incision; (2) to take away every vestige of the diseased tissues under the guidance of the eye; (3) to close the wound in such a way as not to permit any dead space in the resected cavity; (4) to use no suture material whatever except ligatures for arteries and leave the wounds widely gaping; (5) to reproduce epithelium of granulating surfaces without skin grafts.

Scientific Meeting, January 31, 1917

Dr. George W. Green and Dr. J. J. Moore. contributed a joint paper, in which they reported this case and gave abstracts of the literature of cases of postoperative intracranial hemorrhage. The patient was a trained nurse, 36 years of age. Her present trouble began two or three years ago, when she noticed she had a tumor. She had slight pain and during the past year she had noticed the tumor was rapidly increasing in size. She seemed to have a premonition of death. September 10, 1915, her leukocyte count was 10,900, otherwise blood findings were normal. Urine was normal, with the exception of the specific gravity, which was only 1.008, and which was thought all right on account of the patient having abstained from food for 24 hours prior to entering the hospital. She had the ordinary preparation for operation. On entering the hospital her temperature was 98.2 degrees, pulse

104, respiration 22. She went to the operating room about 8:40 a. m. and was returned and in bed at 10:40 a. m. The operation consisted of hysterectomy for a uterine fibroid weighing about 10 pounds. On her return from the operating room her pulse was 88 and respiration 20. The nurse recorded her condition good, with skin warm. At 11:30 a. m. her pulse was 80, and nurse reported she was awake and quiet. During the next 18 hours, patient had 23 convulsions and died.

POSTOPERATIVE VOLVULUS

Dr. C. A. Buswell read a paper on this subject, in which volvulus is defined as a twisting of the intestine upon its long axis until there is sufficient interference with the blood supply to cause strangulation unless relief was afforded. The exact mechanism of its production is unknown, but the two necessary factors are, first, a congenital or acquired defect in the intestinal attachment, allowing of a free mobility, and, second, a condition producing an artificial pedicle.

The conditions which predispose to volvulus are more frequently found in persons of advanced years than in the young, and volvulus is most common in the aged and those past middle life. The immediate cause may be a strain or some effort, as in lifting, or a traumatism, such as in compression of the body. Sometimes overloading of the intestinal tract, combined with some effort or strain, is of importance. Thus in old people who have suffered from habitual constipation the sigmoid flexure becomes elongated and its mesentery stretched.

POSTOPERATIVE SEQUELAE AND THEIR AVOIDANCE

Dr. George De Tarnowsky, in speaking of inguinal herniotomies, stated that after splitting the external oblique muscle and exposing the canal, a small nerve is to be seen passing one cm. above and almost parallel to the lower margin of the conjoined tendon. This is the most important trophic nerve of the conjoined tendon. Its removal or inclusion in the coapting sutures is probably responsible for many hernial recurrences. That abuse of drainage, and more particularly the repeated reintroduction of drainage tubes or of cigarette drains into the peritoneal cavity, accounts for a large percentage of postoperative fistulae is the firm conviction of the author.

Scientific Meeting, February, 7, 1917

ALCOHOLISM: ITS PSYCHOLOGY AND ITS CURE BY PSYCHOTHERAPY, WITH DEMONSTRATION OF METHOD

Dr. Albert H. Burr stated that under given conditions the alcoholic is especially susceptible to the salutary influences of this form of therapy. He recently cured a hard drinker who, many years ago, reformed and for 13 years was a total abstainer. One night, at a social function, Manhattan cocktails were served. He pushed his glass aside, but was bantered to eat the cherries, which it was urged could do no harm, but the brandied fruit aroused the old appetite with irresistible power. He left the table intoxicated and returned to his former intemperate habits. The application of psychotherapy for the cure of alcoholism, therefore,

is a rational therapy, because it is based upon the known laws of suggestibility. It is safe, agreeable and economic, for the patient may continue or soon resume his vocation during his course, without publicity or undue sacrifice of time and money spent in an institution.

A NEW PROCEDURE IN THE DIAGNOSIS AND DETERMINATION OF CURE OF GONORRHEA

Dr. Louis D. Smith described his test in great detail, after which he drew the following conclusions: It appears that we have a reliable test, employing the principles of complement fixation, that determines the presence of the gonococcus in any manner of discharge from any accessible location and at the very inception of the disease. It has been a harbinger of an exacerbation, even before any subjective or objective signs or symptoms indicate it. Specimens for the test are easily collected and prepared without any discomfort to the patient. It is possible to locate the focus of infection, thus serving as a guide to the proper treatment. The test has been especially valuable in the diagnosis of gonorrhea in the female. Finally, it is a reasonably certain aid in the determination of a cure. *Joint Meeting of the Chicago Medical Society and the Medical Women's Club of Chicago, Feb. 14, 1917*

PAIN AND VOMITING IN BILIARY TRACT INFECTIONS

Dr. Charles L. Mix said there were two points which he wished to bring out. The pain which occurs in biliary tract infections is sometimes a steady pain, sometimes a paroxysmal pain and it is frequently a referred pain or a reflex pain in parts other than the biliary tract region. The steady pain is usually associated with tenderness and soreness underneath the right costal border and is very constant. He considered the referred pain which occurs in these cases of true biliary tract infection as the principal point to consider. The other point he wished to emphasize had to do with the general subject of vomiting and the character of the vomitus in certain cases of trouble in the upper abdomen.

The speaker said that in all cases in which there is obscurity of diagnosis in diseases of the upper abdominal quadrant the complication of referred pain in the phrenic nerve is significant of disturbance about the transverse fissure of the liver, and the vomiting of bile should always raise the thought of disturbance in the upper abdominal quadrant.

TUMORS OF THE BREAST

Dr. Frederick A. Besley discussed tumors of the breast under three heads: 1. The increasing number of tumors of the breast seen by the physician. 2. Methods of early diagnosis. 3. The exhibition of lantern slides for the purpose of showing the more common types of breast tumors. Earlier and older statistics show that from eighty to ninety per cent of all tumors of the breast seen in large clinics were malignant. This percentage of benign to malignant tumors is rapidly changing, Rodman and Bloodgood in re-

cent statistics having shown that at least 50 per cent of tumors now seen by examining physicians are benign. The author stated that it was his conviction if a diagnosis is to be made early enough to offer the patient the best possible hope for recovery, it must be made before it is possible to make it with clinical evidence unaided. The microscope should always be used as an adjunct.

THE PSYCHOSES OF ADOLESCENCE

Dr. Harriet C. B. Alexander said adolescence was a period of stress when a new function is introduced into the organism disturbing the physiological balance previously existing. The mental attitude of the adolescent is one of uncertainty and doubt. The etiologic moment has two of its elements always in evidence in adolescence, the congenital constitution and the constitution at a particular time.

J. V. FOWLER,
Secretary.

CHICAGO ROENTGEN SOCIETY

Regular meeting held at the Graduate School of Medicine, January 12, 1917.

The first number on the program was the exhibition of interesting plates with case reports, among which Dr. E. Blaine showed a Roentgenogram of a patient with a large spiral spring lodged in the esophagus. The patient was demented and attempted to swallow it after removing same from the bed spring.

The next numbers on the program were papers by Dr. C. A. Donaldson and Dr. W. A. Gekler, the abstracts of which are appended.

JAMES T. CASE, President.
M. J. HUBENY, Secretary.

ROENTGEN DIAGNOSIS AND LOCALIZATION OF FOREIGN BODIES IN THE EYE AND ORBIT

C. A. DONALDSON, M. D.,
MINNEAPOLIS, MINN.

Reporting a series of 151 examinations, of which 5 per cent were women and 13 per cent were children, a foreign body was demonstrated in 50 per cent of cases.

A horizontal section of the orbit reveals a thick triangular dense bone, the malar, which forms the external orbital border. It is in marked contrast with the loose interorbital bone structure. A plane drawn through these two borders bisects the eye in its average position.

Rays passing from an angle of 10 to 12 degrees forward throw the malar shadow of the uninjured side back of the injured eye and constitutes the angle of choice. This leaves the anterior chamber and lens free from any bone shadow except that loose interorbital structure, while the posterior two-thirds of the eye has a single dense border to obscure the shadow of a foreign body.

Failures. In one of Sweet's failures the thin particle of steel in the nasal portion of the lens was ob-

scured by the orbital border, showing that an angle of perhaps 25 to 30 degrees was used. In my own case, the first exposures, made in the plane of the external orbits, failed to show steel in the vitreous, the two malar densities entirely obscuring the shadow.

A subsequent examination at a 10 degree angle showed steel 2x3 millimeters very clearly. Other failures have been reported by Arcelin & Randolph, but give no technic.

Plate measurements have the following accuracy: Ant.-post., is exact. Vertical less so, and horizontal has a possible error of 1 to 2 mms.

Kohler's claim, that doubling of the foreign body shadow with eye movements proves it to be intraocular, has been criticised, but is largely correct. The outer layer of Tenon's capsule has very slight movement from a point near the cornea to nearly the entrance of the orbital nerve. In this area Kohler's contention must be admitted. The anterior and the extreme posterior portions of the globe, however, do not have the extra ocular tissues fixed. Fortunately the large percentage of cases are located within the favorable area for this special examination. For the anterior check examination, the writer has inserted a small needle on the inner side of the lid with good results.

A chin fixing device was shown. It prevents movements of the chin in any direction, and is additional aid in localization.

Finally all negative cases should be examined at various angles, and exposures should be overtimed.

In localization it is well to remember that the Sweet charts are drawn for 24 mm in diameter and are for the axis only. The diameter of any plane, either anterior or posterior, for the axis is progressively less than that of the axis.

Centering of the indicator, and the measurement of its distance, before and after exposures, must correspond. If they do, it is reasonable to suppose that the eye has remained fixed during this time.

PHTHISIS PULMONALIS AND OTHER FORMS OF INTRATHORACIC TUBERCULOSIS.

W. A. GEKLER, M. D.,
Medical Superintendent, Municipal Tuberculosis Sanitarium
CHICAGO.

The writer calls attention to the fact that tuberculosis disease in the chest does not always manifest itself in the same manner. It is possible to differentiate radiographically as well as clinically between these different forms of tuberculosis.

The first form discussed was the primary tuberculosis of children, with the invariable regional gland involvement. The point was made that in the primary tuberculosis, and only in the primary tuberculosis, does one find this regional gland involvement. The later forms of tuberculosis are practically always metastatic from a glandular focus. The lesion at the point of inoculation is usually quite slight in extent and shows a marked inclination to healing. The disease may remain latent in the glands, however, for a long period of time and metastasis take place

following some injury, whether that be an intercurrent disease, overwork or dissipation, etc.

Phthisis pulmonalis is a broncho-genic metastasis, a true bronchial infarct. This disease is intra-alveolar, pneumonic in type and as a rule has a bad prognosis, no matter how slight the earlier lesion may be. The first manifestation of phthisis pulmonalis may be quite severe and the patient have a great amount of involvement within a very short time after the pulmonary symptoms have manifested themselves. In other words, the disease does not always begin as "incipient" and then later become moderately advanced and far advanced. It may be far advanced from the very beginning. Extension takes place via the bronchi by aspiration of tuberculosis material into unaffected parts of the lung. Phthisis pulmonalis may in rare instances be caused by a reinfection from without.

Another form of broncho-genic metastasis is pleural tuberculosis, in which the metastatic tubercle, instead of rupturing into the bronchus, with the discharge of its contents to the outside, ruptures into the pleura with resulting pleural disease.

Miliary tuberculosis, whether it be a general miliary or only a partial miliary, with local manifestations in joints, bones, kidneys, etc., is a hematogenous metastasis which very often comes from a diseased bronchial gland. The result of such a miliary tuberculosis depends upon the number of organisms getting into the circulation, as well as the "resistance" of the individual. When the lungs are also involved in a general miliary tuberculosis the radiograph is the best diagnostic means we have at present.

Still another form of tuberculous disease is one which is rather uncommon and has a fairly good prognosis. This is caused by an extension of the disease per continuity from the glandular focus along the lymph channels. It is interstitial in type, running a slow course and responding usually more readily to treatment than phthisis pulmonalis. Radiographically one misses the cloudy shadows of the tuberculosis broncho-pneumonia in this type of disease.

This work was based on the radiographic study of 700 cases with all forms of tuberculosis, and clinical observations on 3,000 such cases.

MADISON COUNTY.

The Madison County Medical Society met in the Grand Jury Room of the Court House at Edwardsville on January 5, 1917, with President Dr. J. B. Hastings in the chair.

Members present: Drs. Johnson, Burroughs, Oliver, Kiser, Church, Kerchner, Harrison, Sims, Cook, Sutter, Pfeifferberger, Hamm, Gossard, Ferguson, Hirsch, Barnsback, Schreifels, Hastings, J. W. Scott and E. W. Fiegenbaum. Visitors: Dr. John Young Brown of St. Louis; Dr. F. S. O'Hara, of Springfield. Also the following dentists: Dr. Geo. C. Schwarz, Dr. Homer Baird and Dr. Roy Fink, all of Edwardsville.

The minutes of the last meeting were read and approved. The application of Dr. Wilcox Thorne, of Granite City, was read and referred to special board of

censors: Drs. Johnson, Schreifels and Burroughs, who made a favorable report. The rules were suspended and on motion the secretary was instructed to cast a favorable ballot and Dr. Thorne was declared elected to membership in this society.

The president appointed the following members to serve as auditors during the ensuing year: Drs. F. O. Johnson, O. C. Church and E. A. Cook. Bills to the amount of \$58.06 were referred to auditors, found correct and ordered paid.

Dr. John Young Brown, of St. Louis, was introduced and read a very fine paper on the "Surgery of Cancer." He held the attention of all and presented the very latest ideas on this subject and at the conclusion of his address many of the members took part in the discussion.

Dr. F. S. O'Hara, of Springfield, followed with an address on "Teeth and Their Influence on Systemic Disorders." This lecture was illustrated by 60 or 70 sliding pictures showing various disorders of the teeth and indicating a probable source of infection which causes pathological changes in various parts of the body. The lecture throughout was very interesting and instructive.

After a hearty vote of thanks to both of our speakers, the society adjourned to meet in Granite City on the first Friday in February.

Personals

Dr. Karl F. Snyder has been elected president of the Freeport Club.

Dr. D. M. Keith, Rockford, and family visited in Cuba last month.

Dr. S. S. Fuller, Paxton, is reported about to remove to Riverside.

Dr. and Mrs. E. Wyllys Andrews left for Florida, February 8th.

Dr. F. O. Ringnell, Moline, and Mrs. Ringnell are visiting in San Diego.

Dr. W. C. Hovey has returned to Nokomis after several months in Denver.

Dr. C. F. Yerger, Cicero, has recovered from an illness of several months' duration.

Dr. Elmer E. Hagler, Springfield, escaped serious injury in an auto collision recently.

Dr. E. S. Smith, Urbana, was robbed and beaten by holdup men while making a call last month.

Dr. Lowell F. Ingersoll was run over by a street car, January 22, and sustained severe injuries of the foot.

Dr. John W. Nuzum, Chicago, was operated on for appendicitis at the Cook County Hospital, February 19.

Drs. E. Wyllys Andrews and Edmund Andrews have removed their offices and laboratories to 2526 Calumet Avenue, Chicago.

Dr. Harry C. Rolnick has returned after several months' duty in military hospitals on the Rhine and in Western Prussia and Bohemia.

Dr. Jas. G. Kennedy, Bridgewater, S. D., who lived in Chicago twenty years before going to South Dakota, has removed to Garnett, Kansas.

Dr. Jacob J. Minke returned to Chicago February 8th, after eight months' service in a military hospital at Pardubitz, near Prague, Bohemia.

Dr. Arthur William L. Hanson, Belleville, has left for England, where he has received an appointment in the British Hospital Medical Service.

Dr. Arthur F. Schuettler was held up and robbed of a watch, diamond pin, money and a case of surgical instruments near his home, February 17th.

Drs. A. O. Moore, Hugh Meachem and L. P. Waldman, Chicago, sustained minor injuries when the auto in which they were riding was struck by a street car and thrown against a lamp-post.

News Notes

—The house of Dr. James H. Oughton, Dwight, was destroyed by fire February 11.

—February 3, Dr. Charles W. Miller, Peoria, discovered ten cases of smallpox in one family.

—The directors of the Fenger Memorial Association have made a grant of \$400 for research on heat stroke.

—The Peoria Medical Society at its meeting, February 6, unanimously voted to join the Peoria Chapter of the American Red Cross.

—The Beulah Home and Maternity Hospital has purchased property on North Clark Street, near Webster, 40 by 50 feet, for \$14,000.

—Examinations for internship in Cook County Hospital will be held March 13 to 15.

Graduates of medical schools in Cook County are eligible.

—Michael Reese Hospital has purchased, from the estate of William M. McClintock, property on Lake Park Avenue, 50 by 92 feet, adjoining the hospital, for \$18,000.

—The Illinois Tuberculosis Association is arranging for a tuberculosis survey of LaSalle, Adams, Morgan, McLain, Champaign, Livingston, Ogle and Kane counties.

—St. John's Hospital, Springfield, will build a tuberculosis sanatorium to cost \$500,000. It will be six miles east of Springfield on a site of 153 acres. Work will be begun in March.

—The board of directors of the Children's Memorial Hospital voted to accept, February 12, the offer of Mrs. Arthur Ryerson of the use of her home during the summer months for convalescent children.

—At a meeting of the Institute of Medicine of Chicago, February 22, Dr. Horatio B. Williams of Columbia University, New York, delivered an illustrated address on "Electrocardiography and its Applications to Medicine."

—A number of physicians, headed by Drs. J. Rawson Pennington and Charles H. Parkes, are organizing a base hospital unit with headquarters at the Sheridan Park Hospital. Dr. Clarence L. Wheaton has been selected as adjutant.

—A conference of physicians under the auspices of the state board of health was held at St. John's Hospital, Springfield, February 20 to 23, to study the treatment of children suffering from infantile paralysis. A clinic was also held.

—The Board of U. S. Pension Examining Surgeons for Pike County has been reorganized with the following officers: Dr. W. E. Shastid, Pittsfield, president; Dr. F. N. Wells, Pittsfield, secretary; Dr. R. P. Wells, Pleasant Hill, treasurer.

—Sangamon County Medical Society has established a medical library in the lecture room of St. John's Hospital, Springfield. A number of medical books and magazines have been donated, and it is hoped to open the library in March.

—Have you had your telephone "fumigated?" A story is going the rounds that people have been advised to cover their receivers with a heavy cloth

as the Telephone Company was about to fumigate the phones by blowing some very offensive gas through them.

—Dr. Roscoe Giles, the Negro physician who was certified as junior physician at the municipal tuberculosis sanitarium, Chicago, was dismissed on the first day of service as the opposition by patients was so great as to affect their physical condition unfavorably.

—A new Red Cross unit was formed at St. Luke's Hospital, February 10, with Mrs. Heaton Owsley as chairman. The organization will be divided into two classes under the direction of Dr. Lewis L. McArthur, and will meet at St. Luke's and Michael Reese hospitals.

—The eugenics bill, requiring physical examination before the issuance of marriage licenses, was reported favorably by the house judiciary committee February 20. Tuberculosis and other communicable diseases were added to the provisions of the original draft of the bill.

—A new journal, *The Radium Quarterly*, has made its first appearance. The journal will be devoted to Radium Therapy, and is published by the Radium Institute, Chicago. Volume I is of very neat appearance, printed on an excellent grade of glazed paper, thus making the illustrations appear as they should.

The journal should fill a very important role in medicine, and we hope it has come to stay.

—The Illinois Division of the Medical Reserve Corps has issued an appeal to recent graduates of medical schools who have had a hospital internship to consider entering the medical service of the army or navy. There are at present, or soon will be, 500 vacancies in the medical corps of the army and navy.

—The health officials, philanthropic workers, physicians and nurses of Chicago and its suburbs have organized an association for the prevention of infantile paralysis. Health Commissioner Robertson is president of the association; Mrs. Harlan Ward Cooley, vice chairman, and Dr. Willis O. Nance, secretary.

—The attention of secretaries is called to the small number of reports of county societies we report this month. If anything of general interest happens at your meetings it is up to you to send it to the JOURNAL for publication.

—A plan is on foot for a large addition to the facilities of the University of Illinois for medical instruction and treatment. President James and Dr. E. H. Ochsner suggest the purchase of the old Cubs' ball park for a new university medical college, psychopathic hospital, state central hospital, eye and ear infirmary and hospital for crippled children.

—Sixty-five students of the University of Chicago who have enrolled for service with the American Ambulance in Paris have transferred their service to the American Ambulance Corps which is being organized. The corps will be connected with one of the four base hospitals in Chicago, and will be under the charge of Dr. H. Wernicke Gentles.

—Indictments against six men in Du Page county indicate that fifty physicians were swindled out of \$10,000 by an insurance company that sold stock on the promise of appointing the physicians medical examiners. But if all the insurance men who have bunkoed physicians into insuring on similar promises were in jail, there would be little room left for the rest of the grafters.

—An organization of the health and related organizations of Chicago and suburbs was perfected at a meeting February 15, to plan a campaign against infantile paralysis and forestall epidemic conditions next summer. Dr. C. P. Caldwell suggested pasteurization of certified milk as a safety measure, but after hearing an eloquent defense of certified milk the meeting refused to endorse the requirement of pasteurization except for market and inspected milk.

Marriages

HENRY J. ROTH, M. D., to Miss Annabell McAuley, both of Chicago, January 27.

JULIUS E. LACKNER, M. D., Chicago, to Miss Florence Simon of Minneapolis, January 25.

BROWN S. MCCLINTIC, M. D., to Miss Eleanor Soukup, both of Chicago, at Kermanshah, while in the Russian hospital service.

HANNIBAL CLAUDE FORTUNE, M. D., Rochester, Ill., to Mrs. Claude Beatrix Fortune of Pleasant Hill, Ill., at St. Louis, February 5.

Obituary

DR. HELEN REYNOLDS KELLOGG.

Dr. Kellogg was a member of a wealthy English family, and during her earlier practice was independent financially. Always helpful and sympathetic, she was wont to give her services without thought of exacting any return. After being graduated at the Northwestern University Woman's Medical School in 1886, she was a member of the faculty of the school for several years, teaching gynecology and obstetrics. For two years she attended the large clinics and post-graduate schools of Europe and England. Returning to Chicago she was in active practice and began an association with the Klio Club, to which she lectured and gave medical advice freely for many years. It is said that her talks to the young club members were most inspiring.

The past eight or ten years her health was impaired. After exhausting her resources in the search for health, her associates in the Klio Club, the Eastern Star and the Medical Woman's Club maintained her for some time in a home, and later in the Wesley Hospital. The past six months were spent in the Cook County Hospital, where the end came February 21, from diabetes. Her death was a shock to the many friends of her prosperous days who lost track of her during her long sickness.

TRIBUTE DELIVERED AT THE FUNERAL OF DR. GLIDDEN BY DR. E. B. COOLEY.

Dr. Stephen C. Glidden was born in Kingston, Tenn., February 6, 1870, and died on February 19, 1917, in this city at the age of 47 years.

While a young boy the family removed to St. Paul, Minn., where he attended the public schools until old enough to enter Shattuck Military School at Faribault, Minn. Later he entered Exeter College, New Hampshire.

After this excellent preliminary education he entered the medical department of Michigan University, from which he graduated with honors in 1894.

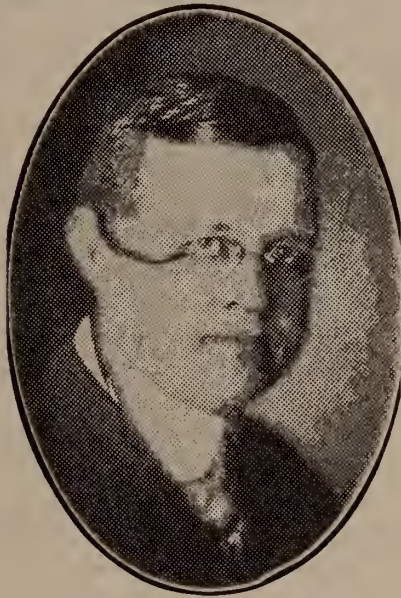
June 6, 1895, he was united in marriage to Dr. Anna Ives, a classmate of the year before, who, with their little daughter, Charlotte, survives him.

Soon after his marriage Dr. Glidden located in Danville, where his rise to professional emi-

nence was almost spectacular. An untiring and optimistic worker, a skillful and painstaking surgeon, strong, fearless and kind, he could not fail to inspire that confidence which is absolutely necessary to a surgeon's success.

He was a member and at one time president of the Vermilion County Medical Society. He was a member of the Illinois State Medical Society and chairman of the surgical section in 1915. He was a member of the American Medical Association, the Aesculapian Society of the Wabash Valley and of the Eastern Illinois Clinical Association.

It is given to few men to attain such success



Stephen C. Glidden, M. D.

in every line as did Dr. Glidden. Those sterling qualities for which he was so well known, made his remarkable professional career possible. The position he held in professional circles and the esteem in which he was held by the members of his own profession is an open book. His mental deductions were rapid and accurate and his judgment akin to foresight.

It is neither as the forceful man of affairs nor the skillful surgeon that I wish to speak of Dr. Glidden. These matters are history. The accomplishments of one so prominent could not escape you. I wish to speak of Dr. Glidden, the man. Always cordial, interested and true, rich in experience beyond his years, and endowed by nature with a keen mind, he was able to get a perspective of life that few men enjoy, and the courage with which he viewed the approaching end spoke volumes for his life.

By nature, profession and training a humanitarian, he was ever ready and willing to respond to the call of distress, a sentinel.

Duty called him where the lights were low, where the shades were drawn and eager questioners with anxious faces met him at the doorway. And what a comforter he was! Resourceful, capable, kind, able, optimistic and wise, there was a quality in his words, thoughts and deeds that has taken his name to the throne of grace in many a mother's prayer.

This courteous, gallant, courageous gentleman was more than a soldier. He was a hero; and when he answered to the final call of taps, when he was mustered out, I am sure it was written in the record, for faithful and important services and bravery in battle.

We have gathered this afternoon to pay the last tribute of respect, bringing not tears, but roses and sweet memories to a type of red-blooded manhood that is rare indeed.

Then let us carry him out in the sunlight where he lived. There we shall lay him away under a bank of flowers, flowers which in the full bloom of life suggest our tender memories of his manly qualities. The memory of his faults will die with the flowers, our sorrows will have gone with the vanishing past, and the only emotion that will come to us is a buoyant pride in the achievements and virtues of this noble man, who has gone to his just reward.

Deaths

JOHN J. RYAN, M. D., East St. Louis, Ill.; American Medical College, St. Louis, 1878; aged 72; died in St. Mary's Hospital, East St. Louis, January 20.

DAVID SEELY ADAMS, M. D., Macomb, Ill.; Keokuk (Iowa) Medical College, 1900; aged 60; a Fellow of the American Medical Association; died at his home, January 24, from pneumonia.

ROBERT STEVENSON DENNEY, M. D., Aurora, Ill.; Rush Medical College, 1909; aged 33; a Fellow of the American Medical Association; died at his home, February 12.

ALLEN A. BARNETT, M. D., Jerseyville, Ill.; University of Louisville, Ky., 1853; aged 86; formerly a member of the Illinois State Medical Society; died at his home, January 12.

JOHN MILTON ELLIOTT, M. D., Peoria, Ill.; Kansas City, Mo., Medical College, 1890; aged 86; a veteran of the Civil War; died in the Deaconess Hospital, Peoria, February 1, from senile debility.

JACOB S. NEWCOMER, M. D., Chicago; College of Physicians and Surgeons, Chicago, 1893; aged 54; for many years a practitioner of South Dakota and an officer of the United States Indian Service; senior consulting physician of the Contagious Diseases Hospital of Chicago; died at his home, January 27, from nephritis.

HENRY J. BURWASH, M. D., Chicago; McGill University, Montreal, 1879; L. R. C. P., London, 1879; aged 62; a Fellow of the American Medical Association; surgeon to the Norwegian Lutheran Deaconess Hospital; corporation surgeon for the General Accident Assurance Company; for a long time surgeon for the Northwest Mounted Police of Canada; died at his home, February 7, from pneumonia.

WILLIAM RUSSELL ALLISON, M. D., Peoria, Ill.; Rush Medical College, 1886; aged 53; a Fellow of the American Medical Association; for several years secretary and once president of the Peoria City Medical Society; for ten years health commissioner of Peoria and once alderman; for five years secretary of the Proctor Hospital Medical Staff, and at the time of his death president; died in his office, January 12, from angina pectoris.

FRANCIS A. SMITH, M. D., Rock Island, Ill.; Pulte Medical College, Cincinnati, 1891; aged 64; formerly of Zanesville, Ohio; local surgeon for the Baltimore & Ohio Railroad, and a member of the Zanesville Board of Education; for six years head physician for Ohio of the Modern Woodmen of America, and since 1903 chairman of the board of supreme medical directors of that organization; died at his home, January 21, from cerebral hemorrhage.

NEW AND NON-OFFICIAL REMEDIES

During February the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with new and non-official remedies:

Merck & Co., Optochin, Optochin Hydrochloride.

E. R. Squibb & Sons, Tablets Sodium Chloride and Citrate-Squibb (Dr. Martin H. Fischer).

Tabellae Dulces Aristochin (Western), 1 gr.—Each tablet contains aristochin 1 grain with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Heroin (Western), 1/100 gr.—Each tablet contains heroin 1/100 gr. with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Novaspirin (Western), ¼ gr.—Each tablet contains novaspirin ¼ grain with sugar, starch, liquid petrolatum, saccharine, curcuma and oil of lemon as vehicles.

Tabellae Dulces Tannalbin (Western), 1 gr.—Each tablet contains tannalbin 1 grain with cocoa, sugar and saccharine as vehicles.

Tabellae Dulces Terpin Hydrate with Heroin (Western), 1/100 gr.—Each tablet contains terpin hydrate ½ grain, and heroin 1/100 grain, with cocoa, sugar and saccharine as vehicles. Western Chemical Company, Hutchinson, Minn. Accepted for the Appendix to New and Non-official Remedies (Jour. A. M. A., Feb. 10, 1917, p. 461).

Book Notices

A **MANUAL OF NERVOUS DISEASES**, by Irving J. Spear, M. D. Professor of Neurology at the University of Maryland, Baltimore. 12mo. of 660 pages with 169 illustrations. Philadelphia and London: W. B. Saunders Company. 1916. Cloth, \$2.75 net.

This hand book of neurology is designed to fill the needs of the general practitioner, who has neither time nor inclination to go deeply into the subject of neurology, and the medical student who needs the elementary knowledge in as brief and clear a form as possible. We think it fills these needs very well indeed.

It will especially be an aid to the general practitioner in the diagnosis of those puzzling organic nervous diseases. The diagrams and other illustrations will aid greatly in making an examination for the various nerve lesions. Differential diagnosis has received special attention. The anatomy of the nervous system perhaps receives the greatest attention, and because of this many of the results of nerve lesions are more clearly presented.

We recommend the book to the general practitioner and the student.

A **TEXT-BOOK OF GENERAL BACTERIOLOGY**. By Edwin O. Jordan, Ph. D. Professor of Bacteriology, in the University of Chicago and in Rush Medical College. Fifth edition thoroughly revised. Octavo of 669 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$3.25 net.

The author states that this text-book is an outgrowth of lectures given to the students in the University of Chicago. It is essentially a student's text-book, but the general practitioner will have use for it, and will find it concise and well adapted to his wants. The sanitarium will find a great deal in the book which he must have put in a clear practical way.

The fundamental principles of the science of bacteriology take up the forepart of the book. A chapter is given to immunity, while a chapter each is given to the filterable viruses, to milk and milk products, to the nitrogen cycle, to bacteria of the arts and industries, to the bacteria of the soil and water, to the bacterial diseases of plants and to the infectious disease of doubtful or unknown origin. Many chapters are devoted to the well-known bacteria and infectious diseases.

This fifth edition brings bacteriology down to date. We can recommend it to those hunting for a text-book on this subject.

A **TREATISE ON DISEASES OF THE SKIN**. For the use of advanced Students and Practitioners. By Henry Stelwagon, M. D., Ph. D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Eighth edition, thoroughly revised. Octavo of 1,309 pages, with 356 text illustrations, and 33 full-page colored and half-tone plates. Philadelphia and London: W.

B. Saunders Company, 1916. Cloth, \$6.50 net. Half morocco, \$8.00 net.

Any text-book running its eighth edition needs no commendation by a reviewer. The profession has already endorsed it.

Those of us who have been using one of the earlier editions of the work will see a rather large revision, as much new material has been added. The book is so large and complete that the student is apt to think the subject beyond his mastery. For the general practitioner it will prove to be one of the most used of reference works. The painstaking detail of treatment which the author gives will always be popular with the general practitioner, who has often failed in treatment because of an inefficient method rather than inefficient remedies. The dermatologist will welcome this new edition, but the practitioner needs it.

A **TEXT-BOOK ON THE PRACTICE OF GYNECOLOGY**. For Practitioners and Students. By W. Easterly Ashton, M. D., LL. D, Professor of Gynecology in Graduate School of Medicine of the University of Pennsylvania. Sixth edition, thoroughly revised. Octavo of 1,097 pages with 1,052 original line drawings. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$6.50 net. Half morocco, \$8.00 net.

This sixth edition of Ashton's Practice of Gynecology is just from the press of W. B. Saunders Company. We know of no text-book on gynecology which we think will serve the purpose of this book to the operating gynecologist. While we think it is of most value to the operator, the medical side of gynecology is not neglected.

The book is uniform in style and binding with previous editions, but has been revised, brought down to date and some new material inserted. Its chapters on examination will be found especially useful in diagnosis. The text of the book is brief, but always to the point and clearly expressed.

The illustrations which are profuse are mostly diagrammatic, but frequently serve the purpose better than drawings. A large feature is the numbered illustration of the instruments needed in a particular operation, thus helping to overcome the too frequent forgetting of certain, badly needed instruments. The gynecologist can ill afford to be without this book.

A **MANUAL OF PHYSICAL DIAGNOSIS**. By Austin Flint, M. D., LL. D., Late Professor of the Principles and Practice of Medicine and of Clinical Medicine in Bellevue Hospital Medical College, etc. Seventh Edition, Revised. By Henry C. Thatcher, M. S., M. D., Associate in Medicine in the College of Physicians and Surgeons of Columbia University; Assistant Attending Physician, Roosevelt and Lincoln Hospitals, New York. Illustrated. Price, \$2.50. Lea & Febiger, Philadelphia and New York.

One of the greatest mistakes of our college curricula of today is the absence of sufficient time given to the teaching of physical diagnosis. In recent years

laboratory methods have had the tendency to drive the student away from physical diagnosis, and as a consequence, when the student emerges as a physician and gets beyond the shadow of the laboratory, his efforts are frequently amusing, painful or pitiable. Palpation, percussion or auscultation of any portion of the body is an art, an act not to be done lightly.

A new revision of an old work, so well known as this, will be appreciated. The practitioner will find it valuable to review, and the student or recent graduate will find it a necessity.

The book remains in style the same as its predecessors. A chapter on physics has been introduced, the entire book revised and newer methods added, while the chapter on Arrhythmia has been rewritten.

CLINICAL GYNECOLOGY. By James C. Wood, A. M., M. D., F. A. C. S., Formerly Professor of Obstetrics and the Diseases of Women and Children in the University of Michigan, Homeopathic Department; and of Gynecology in the Cleveland-Pulte Medical College; Founder Member of the International Periodical Congress of Gynecology and Obstetrics; Gynecologist to the Huron Road Hospital; ex-President of the American Institute of Homeopathy, etc. Cloth, \$2.00 net. Philadelphia, Boericke & Tafel, 1917.

The author in the foreword states that the book is a series of clinical lectures delivered to a senior medical class, the lectures being later revised, added to and generally edited.

The author has a strong tendency toward Homeopathy, and he makes an earnest appeal for a better medical gynecology. While he is a surgeon first, he condemns a too radical surgery in gynecologic practice. Although these lectures were delivered as clinical gynecological lectures, the author does not confine himself to strictly speaking gynecologic subjects. This takes us back again to his foreword, where he emphasizes the opinion that a surgeon should first be a general practitioner, and thus be able to analyze the entire body and its ailments, and note more carefully the co-relationship between the afflicted or pathologic organ and the rest of the body, than can a man who has devoted his time to one specialty.

There is much in this book which appeals to us.

ANIMAL MICROLOGY. Practical exercises in Zoological Micro-Technique. By Michael F. Guyer, Ph. D., Professor of Zoology in the University of Wisconsin, President (1916), The American Microscopical Society. With a Chapter on Drawing by Elizabeth A. Smith, Ph. D., Instructor in Zoology in the University of Wisconsin. Revised Edition. Price, \$2.00. The University of Chicago Press, Chicago.

This is an excellent text-book for the elementary teaching or study of Microscopy, and all laboratory workers should have a copy. We know of no volume which covers the ground in so satisfactory a manner. Its instructions are so concise—so clear that it makes the study of laboratory methods simple.

CARE OF PATIENTS undergoing Gynecologic and Abdominal Procedures, before, during and after operation by E. E. MONTGOMERY, M. D., Professor of Gynecology in Jefferson Medical College, Philadelphia. 12mo. of 149 pages with 61 illustrations. Philadelphia and London: W. B. Saunders Company, 1916. Cloth, \$1.25 net.

This little volume is intended for those who are preparing for gynecologic operations. It will be found especially useful for the surgeon and nurse in planning for the operation and in choosing instruments. It gives many little details in preparation and care of the patient, both prior to and after the operation, and calls attention to many small matters which though important are frequently forgotten.

THE MEDICAL CLINICS OF CHICAGO. Volume II, Number IV (January, 1917). Octavo of 231 pages, 20 Illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly. Price per year: Paper, \$8.00; cloth, \$12.00.

This number of clinics contains a number of exceedingly interesting and instructive subjects. Among the numbers, Dr. Williamson on Splanchnoptosis, Dr. Tice on Pulmonary Abscess Following Delayed Resolution in a Croupous Pneumonia, Dr. Wright on Acidosis, Dr. Strouse on Early Diagnosis of Pulmonary Tuberculosis, Dr. Mix on Ulcers of Stomach and Duodenum, are very good. However, the balance of the clinics do not lose in value by comparison.

CLINICAL AND LABORATORY TECHNIC, by H. L. McNeil, A. B., M. D., Adj. Prof. of Medicine and Instructor in Physical Diagnosis, University of Texas Medical School, Galveston, Texas. Illustrated. C. V. Mosby Company, St. Louis, 1916. Price, \$1.00

An outline work, which mastered, will aid greatly in systematic work.

PRACTICAL URINALYSIS, by B. G. R. Williams, M. D., Director Wabash Valley Research Laboratory; Author of Laboratory Methods, etc. Illustrated. C. V. Mosby Company, St. Louis, 1916. Price, \$1.25.

A short guide for the every day analysis of urine. It is not, and does not claim to be complete, which, however, does not destroy its usefulness to the student or practitioner, who does not go further into the chemistry of the urine.

THERAPEUTIC EXERCISE AND MASSAGE. Designed for the use of Physicians, Students and Masseurs. By C. Hermann Bucholz, M. D., Orthopedic Surgeon to Out patients; Director of the Medico-Mechanical and Hydrotherapeutic departments of the Mass. Gen. Hospital, Boston, Mass.; Assistant in Physical Therapeutics, Harvard Graduate School of Medicine. Illustrated with 89 engravings. Lee & Febiger, Philadelphia & New York, 1917. Price, \$3.25.

A very useful and timely volume on the use of exercise and massage in the treatment of disease. The subject, which is sadly neglected by most physicians, is presented in a pleasing style, and should be highly instructive. For the physician who desires to master this subject, this book can be used with profit.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI

CHICAGO, ILL., APRIL, 1917

No. 4

Original Articles

APPENDICITIS COMPLICATING PREGNANCY.

AIME PAUL HEINECK, M. D.,

Professor of Surgery, Chicago College of Medicine and
Surgery, Chicago.

CHICAGO

Appendicitis attacks all ages and both sexes. Though distinctly a surgical disease, it is also of great practical interest to gynecologists, obstetricians and general practitioners.

The frequency of appendicitis in the female, pregnant or non-pregnant, is underestimated and its significance not fully appreciated. It is often overlooked, misdiagnosed, and therefore improperly treated. The autopsy findings often bring the first intimation of the true cause of the clinical picture.

To serve our fellow practitioners, we collected, analyzed and studied the original reports of all the operated cases of appendicitis occurring during pregnancy, that are to be found in the French, English and German medical literature from 1900 to 1915 inclusive, and also some unpublished personal cases. Cases reported with insufficient data were not considered.

The subject will be discussed under the following subheads:

1. Incidence.
2. Etiology.
3. Combined appendicitis and extra-uterine Pregnancy.
4. Pathology.
5. Coexisting conditions.
Influence of pregnancy upon appendicitis.
Influence of appendicitis upon pregnancy.
6. Diagnosis.
7. Differential diagnosis:
(a) Maternal.
(b) Fetal.
8. Prognosis.

9. Treatment:

- (a) Prophylaxis.
- (b) Indication for operation.
- (c) Operative.

10. Post operative sequelae.

11. Summary.

Incidence. During the child bearing age, woman is at no time exempt from attacks of appendicitis. In forty-six of our selected cases, the age is not stated. The remaining patients were at time of operation:

Under 18 years.....	3 cases
18 to 20 years, inclusive.....	13 cases
21 to 25 years, inclusive.....	33 cases
26 to 30 years, inclusive.....	42 cases
31 to 35 years, inclusive.....	23 cases
36 to 40 years, inclusive.....	12 cases
One patient 42 years.	

The condition occurs in primiparæ and multiparæ; in, first, early and late pregnancies; in single and twin pregnancies. Appendicitis can coexist with other disease processes to which it may be primary, secondary or coincidental.

In the cases forming the basis of this article there are noted thirty primiparæ, twenty deutiparæ, thirty-seven multiparæ.

The number of previous pregnancies, if there were any, is not stated in eighty-three cases. Appendicitis occurs at all periods of gestation. In some cases, the disease antedated pregnancy; some cases were operated on early with reference to onset of symptoms; some late. It is recorded that operation was indicated and performed:

During the first three months of gestation, 40 times.

From 4 to 6 months, inclusive, 60 times.

From 7 to 9 months, inclusive, 28 times.

Period of gestation not stated, 45 times.

Etiology. The etiology of appendicitis in a pregnant woman is the etiology of appendicitis in the non-pregnant woman. It is the belief of many clinicians that gestation does not exert any influence, good or bad, upon the normal appendix.

Appendicitis is primary or secondary; it may be secondary to disease of the uterine adnexa, just as inflammatory diseases of the tube and ovary may be secondary to an appendicitis. Recurrent attacks of appendicitis may be precipitated by pregnancy, labor or puerperium. Pregnancy can provoke acute inflammatory disturbances in an appendix bound down by dense adhesions or containing a foreign body, one or more fecal concretions, or worms. The appendicitis complicating pregnancy may be the patient's first attack. It may have been preceded by one, two, three or more attacks of greater or less severity.

Combined Appendicitis and Extra-Uterine Pregnancy. In some of the reported cases in which appendicitis and ectopic pregnancy were associated, it was not determined which of the two conditions antedated the other; which was primary and which was secondary.

When an appendicitis precedes a tubal pregnancy in which it apparently plays an etiological role, the anatomical changes frequently evolve as follows:

1. Appendicitis.
2. Peri-appendicitis.
3. Peri-adnexitis.
4. Formation of inflammatory adhesions interfering with tube mobility and tube function and producing tubal malformation.
5. Tubal pregnancy.

All these conditions favor the ectopic implantation of fertilized ova. Appendicitis may hasten tubal abortion through local infection, through general intoxication, may lead to suppuration of hematoceles of fetal cysts.

To differentiate appendicitis from extra-uterine pregnancy is at times difficult. In the unruptured state, the pregnant tube gives symptoms analogous to those of chronic appendicitis. An infected hematocele presents the signs of suppurative pelvic peritonitis. Peritoneal hemorrhage due to a ruptured tubal gestation sac has symptoms closely resembling a diffuse septic peritonitis. Positive Abderhalden test, absence of fever, vaginal hemorrhage, symptoms of internal hemorrhage will point to tubal pregnancy. It is interesting to make an exact diagnosis, but as both diseases are surgical affections exposing mother and fetus to serious danger, the watchword in both conditions should be early opera-

tion. Appendicitis calls for prompt operative treatment; extra-uterine pregnancy is an emergency condition calling for immediate ablation of the ectopic fetal sac.

In all the cases of appendicitis and extra-uterine pregnancy herein considered, twelve in number, operation gave excellent results. The findings differed in nature and consequently the operative procedures varied in extent in the different cases.

Pathology. Acute and chronic inflammation of the appendix involve the organ, in part or its entirety, and are associated with catarrhal, fibrinous, sero-fibrinous, sero-purulent, or purulent exudates present in the cavity of the appendix, in its wall, or around it. The inflammatory process may be limited to the mucous membrane, may involve part of or the entire thickness of the appendiceal wall.

The appendix veriformis may be partly or wholly intra- or extra-peritoneal. A retro-peritoneal or extra-peritoneal appendix the seat of suppurative inflammation gives rise to retro-peritoneal or extra-peritoneal pus collections. Adhesive inflammation may lead to permanent fixation of the appendix, to one or more abdominal viscera normal or pathologic, to the abdominal parietes, or to both. Inflammatory adhesions involving the tube may angulate it, constrict it; may interfere with tubal mobility and tubal function, may change its course and play a fairly important role in the etiology of sterility. The appendix during a 280 day pregnancy may touch every organ of the abdomen. Pus in quantities, large or small, may be present within the cavity of the appendix, in its wall or around it. Acute suppurative inflammation of the uterus and tubes may be set up by direct extension from an acutely inflamed appendix. The walls of appendiceal or peri-appendiceal abscesses are formed in part by one or more of the following organs: uterus, adnexa, omentum, intestine, small or large, etc. An appendicular abscess may bulge into the posterior cul-de-sac, may open spontaneously into the uterus, vagina, rectum.

The inflammation proceeded to the state of gangrene in twenty-four cases; in eleven of these cases one or more perforations were present. The gangrene may be limited to the mucous membrane, may affect the entire appendiceal

wall or the entire organ. Any part of the organ, tip, middle, base, may be gangrenous. Fecal concretions, one or more, were present in thirteen appendices. It is easy to understand how inflammation migrates from the appendix to the Fallopian tube, to the pregnant uterus, etc. These instances of pelvic inflammatory processes extending by continuity or contiguity of tissue, occur in the pregnant as well as the non-pregnant. Distal pus collections are due to metastases by way of the lymph or blood channels. In the ulcerative type of inflammation the ulcer extends in depth and in surface area; when all the coats of the appendix have been burrowed through, a perforation results. The apex, the base, or any other part of the appendix may be the seat of perforation.

Coexisting Pathological Conditions. Coexisting pathological conditions are primary or secondary to the appendiceal inflammation or merely coincidental, bearing no relation of cause or effect to it. It is not uncommon for appendicitis in the female to be complicated by or associated with tubal and ovarian diseases: salpingitis, pyosalpinx, hydrosalpinx, ovarian abscess, tubo-ovarian abscess, parametritis, etc. Close anatomical association of the appendix with the uterus and the adnexa explains the frequent simultaneous involvement of these organs in disease processes.

Influence of Pregnancy Upon Appendicitis. Upon a normal appendix, gestation has little or no influence. Upon an appendix, the seat of previous or latent disease, pregnancy exerts an unfavorable influence. It can intensify an existing inflammation. It may cause a previous inflammation to occur. In view of this possibility many of our best clinicians recommend and practice the removal of the appendix in woman married or about to be married, who have had one or more attacks of appendicitis non-operatively treated.

The pregnant uterus as it ascends in the abdomen commonly displaces the cecum and the appendix from below up, from right to left and from behind forward. In enlarging, the uterus may stretch existing inflammatory adhesions; it may displace, twist, and kink the appendix and thereby whip into activity latent appendicular infections. Pregnancy is a serious complication of appendicitis: 1. When the appendix is adherent to the uterus; 2. When it is the seat of

an inflammation, perforative, gangrenous or suppurative in type; 3. When its inflammation leads to abscess—formation, near or distal; 4. When the uterus forms part of the wall of an appendicular, peri- or para-appendicular abscess. In the aforementioned conditions, adhesions may be torn, abscesses may be ruptured by the enlarging uterus.

Influence of Appendicitis on Pregnancy. Appendicitis is a menace to the mother's life, it is a menace to the gestation. The danger increases with the advance of gestation and is most marked after the fourth month. Infection can and does spread from the appendix to the genital organs by way, 1, of the peritoneum (localized or diffuse peritonitis); 2, of the appendiculo-ovarian ligament; 3, of adhesions existing between the uterus and a perityphlitic pus focus; 4, of the Fallopian tube.

Even a mild case of appendicitis may lead to a plastic peritonitis closing permanently the lumina of both tubes. From inflammatory adhesions may result dysmenorrhea, subinvolution, sterility through inflammatory closure of tubal ostia, habitual abortion, extra-uterine pregnancy, a tendency to uncontrollable vomiting, etc.

Appendicitis in the pregnant state may or may not terminate pregnancy. The prognosis is good as to non-interruption of pregnancy: 1. When the appendix does not hang in the small pelvis; 2. When the inflammation is limited to the appendiceal mucosa; 3. When it does not extend beyond the appendiceal wall; 4. When the appendiceal abscess is small.

Premature termination of gestation either by fetal death, fetal expulsion, or both, may be caused by: 1. Sequels of previous appendicitis, acute or chronic; inflammatory adhesions, old or recent, preventing uterine expansion; 2. Infection from the appendix extending through the tubes to the uterus and its contents; 3. Infection reaching the placenta through lymphatic and vascular channels; 4. Metastatic inflammation of the placenta disturbing its circulation; 5. Local irritation; 6. Fatal effect of hyperpyrexia upon ovum.

The further pregnancy is advanced the greater danger of abortion after operation. The chance of abortion after early operation is very small, indeed, for the operation is then done before an extensive inflammation has involved the uterus or an abscess rendered the patient septic.

Tendency to abortion is small in clean cases, as in this type the operative manipulation is reduced to a minimum.

In 173 cases of appendicitis herein studied it is stated that abortion was artificially induced nine times and occurred spontaneously forty-nine times. Caesarean section was performed four times, abdominal once, vaginal three times.

In eighty-three cases, pregnancy was not interrupted by the operation. In seventeen cases, no definite statement is made.

Diagnosis. Appendicitis is not as frequently misdiagnosed as formerly. Increased familiarity with the condition enables us to make an earlier and more timely diagnosis. It is an established fact that the morbidity and mortality of this disease can be lessened if it be diagnosed and operated on, before the advent of complications, perforation, gangrene, abscess formation, peritoneal involvement, etc. The diagnostic difficulties increase with the advance of gestation and persist during the puerperium.

The symptomatology of appendicitis in the pregnant is the symptomatology of the disease in the non-pregnant. Nevertheless, the recognition of the condition is made more difficult by various factors. One or more of the cardinal symptoms may be lacking. The symptoms and signs may not be sufficiently pronounced to lead to careful investigation or may be classed among the various disturbances incident to pregnancy.

During pregnancy the abdominal walls are on the stretch; they lack the softness and pliability so essential to careful and satisfactory abdominal palpation. In very fleshy patients palpation does not give definite findings.

The seat of pain though always corresponding to the site of the inflamed appendix, may be abnormally high. The leukocyte count gives uncertain findings; at best, it has only relative or corroborative value.

Mistakes are less likely to occur by keeping in mind (a) that every pregnant woman is to be examined for physical defects; (b) that the history is all important—ask about previous attacks; (c) in gravid women all attacks of indigestion associated with vomiting and fever should arouse suspicion and demand a careful examination of the abdomen; (d) right iliac pain unassociated with uterine contractions should lead one to think of appendicitis; (e) deep-seated retro-cecal and other abscesses may

be detected by rectal examination; (f) peri- or para-typhlitic abscesses may be detached by vaginal examination.

In a pregnant woman, acute abdominal pain of a sudden onset, at first diffuse and then remaining localized to the right iliac fossa, suggests appendicitis; more so if the patient gives the history of previous attacks.

Differential Diagnosis. During gestation, many conditions simulate appendicitis. As most of these conditions demand operative relief, the resulting diagnostic mistakes are embarrassing and humiliating to the surgeon, but not commonly disastrous to the patient. In adnexal disease the pain and the objective findings are most always bilateral, while in appendicitis they are unilateral and the pain, as a rule, is more acute. Non-ruptured right tubal pregnancy simulates and is frequently diagnosed chronic appendicitis. Rigidity and tenderness over McBurney's point are seldom marked in extra-uterine pregnancy. Intelligent interpretation of the clinical history and of the objective findings, furnished by a careful and thorough abdominal, rectal and vaginal examination helps one to arrive at a correct diagnosis. Abscesses in the pouch of Douglas, due to perforative appendicitis, have been wrongly attributed to primary uterine and tubal infection; right-sided parametritis, due to the spreading of a retro-colic appendicitis, has been diagnosed ordinary puerperal infection.

In pyelitis, ureteritis, ureteric calculus of the right side, one is guided by the urinary symptoms and findings. Hepatic colic has a sudden onset with pain in the right upper abdominal quadrant; this pain radiates toward the right shoulder and is usually apyretic. The pain of nephritic colic descends and radiates toward the external genitalia. In fecal impaction, the symptoms are less severe and yield to colonic injections and to laxatives.

In advanced pregnancy, the differential diagnosis between appendicitis and cholecystitis may prove difficult owing to the associated upward displacement of the cecum and appendix by the pregnant uterus.

Prognosis. Pregnancy increases the severity and the fatality of appendicitis. Death may be due to intestinal obstruction, to perforation of the appendix, to heart failure, to peritonitis or to sepsis. Recovery takes place through the gradual

subsidence of symptoms; through the spontaneous rupture of an appendicular abscess externally, or into the gut, vagina, urinary bladder, uterus, or other hollow viscus.

The type and the acuity of the inflammation influence the prognosis. The prognosis is good if the changes in the appendix are slight, if the inflammation is limited to the appendiceal wall; if there be slight or no peritoneal involvement, if complications be absent. It is grave in gangrenous, perforative and suppurative appendicitis, and in all cases complicated by abscess formation near or distal, or by diffuse peritonitis. The results for the mother and fetus are better, the less advanced the gestation, the less virulent and widespread the inflammation, the earlier the operation. Maternal mortality of appendicitis in pregnancy increases from the fourth month on.

As far as the child is concerned, prognosis is absolutely good in cases of appendicitis operated on early. Severe maternal appendicitis is exceptionally grave for the fetus, who succumbs either through infection or through interruption of pregnancy. In our cases there were fifty-eight abortions; of these nine were induced and forty-nine were spontaneous. The spontaneous abortions gave seventeen maternal deaths and thirty-two recoveries. The induced abortions gave four maternal deaths and five recoveries.

Prophylaxis. The cause of appendicitis is not known. Therefore, in the present state of our knowledge a discussion of the prophylaxis of appendicitis, of necessity must be and is incomplete, inadequate and inconclusive. The importance of constipation as an etiological factor in appendicitis is as yet undetermined. We do not know how to prevent appendicitis, but we do know how to lessen its morbidity and mortality. Some surgeons remove the appendix during the course of all laparotomies. The removal of a healthy organ because one is not certain that it will always remain free of disease is unnecessary, meddlesome, and contrary to the teachings of conservative surgery.

In all laparotomies for conditions other than appendicitis, if the patient's condition permits, the appendix should be examined and removed:

1. If it be abnormal in length, size or location.
2. If it be in close relation to a pedicle or denuded surface, left by operation.
3. If its

4. If it be the seat of anatomic alterations, club-shaped, thickened, kinked, twisted, strictured, etc.
5. If it contain foreign bodies, fecal concretions, worms, etc.
6. If it be adherent, in part or in its entirety, to some normal or diseased contiguous organ or to the abdominal parietes.
7. If it be the sole content or one of the contents of a hernial sac.
8. If it be the seat of cystic, neoplastic or inflammatory disease.

Operations that contribute to the safety of a pregnant woman should be performed without hesitation.

Indications for Operation. Clinical cures obtained by medicinal measures are rarely anatomical cures. Starvation treatment is debilitating to the mother, is unfavorable to the fetal growth. Perforation, abscess, general peritonitis, subdiaphragmatic abscess, thrombosis and embolism are possible results of expectant treatment. Better to remove too many appendices than too few. Be not deterred by the possibility of a difficult operation for the results of early operation are satisfactory and the mortality low.

Operate early in the attack and early in the course of pregnancy. As a general proposition, operation does not interrupt pregnancy. The triumphs of ovariectomy and hysterectomy in pregnancy are well known; in appendicitis operation is even more urgent. Accumulated instances are on record in which pregnant uteri have been operated upon, cauterized, etc., in which ovarian and other pelvic tumors have been removed without pregnancy being terminated. The high mortality of appendicitis in pregnant women is due to fatal temporization. Placental, uterine and peritoneal infections are such serious complications that one should, if possible, operate before the inflammatory process has extended beyond the appendiceal wall, before abscess formation has taken place, before the onset of peritoneal or other complications.

Operate early in gestation. At that period the uterus is not large enough to be in the way. The operation is less difficult; the tendency to the interruption of pregnancy is minimal and the percentage of maternal recoveries is higher. The danger of recurrence in the latter months of gestation calls for operation during the attack; if that be not feasible an interval operation should be performed as long before the labor as possible.

Operation in fifty cases of non-perforative appendicitis gave only one maternal death and seven abortions. In fifty-five cases of diffuse peritonitis secondary to appendicitis, there were forty-four maternal deaths, only one child was saved, all the others were born prematurely or died soon after birth from weakness, or the illness of the mother resulted fatally before the termination of labor.

Treatment.—Interruption of pregnancy is not indicated; it increases the danger. Rest should be enjoined; during the operation, the uterus should be handled and exposed as little as possible; after the operation opiates should be administered. In a clean case the operative manipulation is slight. Artificial evacuation of the uterus before laparotomy is indicated only when the child is dead or when there are appreciable signs of labor. If the uterus be artificially emptied before the seventh month the child will be definitely lost and the patient not improved. By evacuating an appendiceal abscess before emptying the uterus one avoids flooding the free peritoneal cavity with pus. Operations for appendicitis are performed under local or general anesthesia. Some operators resort to lumbar anesthesia. Operate as rapidly as is consistent with thoroughness and the patient's welfare.

The operation of election is appendectomy, the technic of which is little influenced by the presence of pregnancy. The same surgical principles are applicable in the pregnant as in the non-pregnant.

When in doubt as to whether the case is one of appendicitis, salpingitis, tubal pregnancy, or other pathological conditions, use a suprapubic median incision. This incision affords easy access to most of the pelvic contents and though it is not the incision of election for exposure of the appendix, it is a very serviceable incision. In cases of combined appendicitis and salpingitis, combined appendicitis and tubal pregnancy, combined uterine myoma and appendicitis, etc., the median infraumbilical incision should be employed.

In 125 of our cases the appendix was removed; in forty-three cases it is not stated whether it was removed or not. In five cases it was sought but not found, and therefore, not removed. Each of these cases presented an abscess, which was evacuated and drained. If the appendix be imbedded in a mass of firm inflammatory adhesions

it can be removed by shelling it out of its peritoneal coat.

An appendiceal abscess should be opened at its point of maximal bulging; preferably through a cutaneous surface. If the appendix be not easily found, be content with incising the abscess, evacuating its contents and resorting to tube or gauze drainage. A subsequent operation will rarely be required to remove the appendix. Appendiceal abscesses have been opened and drained through the vagina. Appendiceal abscesses have also been opened through the rectum. These are exceptional procedures; methods of necessity, not of election.

The post-operative treatment is that which is employed in the non-gravid modified only by a longer sojourn in bed, thereby giving time for firm consolidation of the operative wound.

Post-Operative Complications and Sequelae. In cases of such widely different nature as those herein studied, operated on in different surroundings and by different operators, one is not surprised to find noted the occurrence of post-operative complications and post-operative sequelae. The danger of hernia development after timely operations for appendicitis is practically nil. The protection of the operative scar by the aid of adhesive plaster has been recommended. See that labor be not unduly prolonged.

Among the sequelae reported in these cases were four ventral hernias, three cases of diffuse peritonitis, thrombosis of femoral veins, phlebitis, subphrenic abscess, intestinal fistula, etc.

SUMMARY.

1. Appendicitis occurs at all ages and in both sexes. It presents to all medical men important diagnostic, prognostic and therapeutic features.
2. Appendicitis acute, or chronic, initial, relapsing or recurrent, primary or secondary, complicates pregnancy with greater frequency than is believed. It is the most important complication of pregnancy.
3. It occurs in single and twin gestations; in first, early and late pregnancies, in primiparæ, deultiparæ, and multiparæ.
4. It occurs at all periods of the child-bearing age and at all periods of gestation. It complicates both intra- and extra-uterine pregnancies and can co-exist with other disease processes to which it may be primary, secondary or coincidental.
5. Gestation exerts no untoward influence

upon the normal appendix. It can, and frequently does, aggravate existing, or determine new inflammatory disturbances in appendices deviating from the normal in form, length, mobility, location, etc., in appendices bound down by adhesions or the seat of inflammatory or other degenerative changes. Pregnancy does not relieve the dangers of appendicitis, but aggravates them.

6. Appendicitis and uni or bilateral tubal pregnancy are frequently mistaken for each other. They may occur simultaneously or consecutively, may be either primary or secondary to, or independent of each other.

7. In appendicitis, in ectopic pregnancy and in combined appendicitis and ectopic pregnancy, of obscure symptomatology, it matters not whether you are certain or in doubt as to the real diagnosis, early and timely operative treatment is imperatively indicated.

8. During gestation, every type of appendicitis may occur: adhesive, catarrhal, gangrenous, ulcerative, obliterative, perforative and suppurative.

9. Appendicitis with adhesion formation is of great significance because adhesions of inflammatory origin can (a) incarcerate the pregnant uterus in the pelvis and mechanically hinder the enlargement of the uterus, (b) impair the contractibility of the uterus, (c) interfere with uterine labor contractions, (d) entail subinvolution, (e) induce sterility, (f) disturb tubal and ovarian integrity of function and of structure, (g) determine ileus, (h) produce abortion, and (i) lead to extra-uterine pregnancy.

10. Chief among the coexisting pathological conditions noted in appendicitis are simultaneous or consecutive inflammation of the uterus, tubes or other pelvic organs. The close anatomical relations existing between the appendix and the pelvic organs explain their frequent association in disease processes.

11. Appendicitis has a greater morbidity and a higher mortality in the pregnant than in the non-pregnant, operated on or not. It may terminate pregnancy.

12. The symptomatology of appendicitis in the pregnant is the same as in the non-pregnant. The clinical picture, however, is blurred by the coexisting symptoms of pregnancy. Diagnostic mistakes may be lessened by keeping in mind that appendicitis occurs in pregnant women;

that a history of previous attacks during the same or previous pregnancies can frequently be elicited by careful questioning, by thorough and deliberate physical examination. With care, one can in these cases almost always arrive at a correct diagnosis.

13. To establish with certainty the diagnosis of appendicitis during pregnancy, it is necessary to exclude the presence of myalgia due to stretching of abdominal muscles, to exclude typhoid fever, ruptured or non-ruptured tubal pregnancy, cholecystitis, salpingitis, ovaritis, adnexitis, ovarian cyst with or without a twisted pedicle, right-sided pyelitis and ureteritis, fecal impaction, hepatic and nephritic colic. At times, any of the forementioned conditions may so closely resemble appendicitis as to cause diagnostic errors and operative mistakes.

14. The morbidity and mortality of appendicitis complicating pregnancy and the puerperium are the morbidity and mortality of delay in applying efficient surgical treatment. The initial symptoms of the attack do not enable the clinician to foretell accurately how a given case will terminate. What is going to happen in ten, twenty or forty hours following the onset of appendicitis cannot be foreseen. When the condition is diagnosed and remedied early, the mortality is practically nil. Abscess formation may be forestalled by early diagnosis and early operation. The high mortality is due to late diagnosis and late operation. The pregnant woman whose metabolism is good is a good subject for operative measures.

15. Prognosis is better for the mother if there be no interruption of pregnancy spontaneous and otherwise. The bad attacks cause abortions and abortion aggravates the illness. In the great majority of surgically treated there is no interruption of pregnancy and when it does occur it is not due directly to the operation. The interruption of pregnancy is not indicated. It aggravates the prognosis. The fetal prognosis is good in early operated cases.

16. The following prophylactic measures are sound and safe and are recommended for general adoption: (a) During the child-bearing age, recurrent attacks of pelvic pain, dysmenorrhea, menstrual and other pelvic disturbances unassociated with objective pelvic findings are not infrequently due to unrecognized appendicitis or sequelæ thereof. In the presence of this etiological factor, the ablation of the appendix is indi-

cated. (b) In laparotomies for conditions other than appendicitis, the appendix should be examined. Should it present any deviation from the normal, its removal is indicated. (c) During the child-bearing age, any woman who has had one or more attacks of appendicitis treated non-operatively should have her appendix removed so as to correct existing pathological conditions and prevent future attacks of appendicitis and complications incident thereto. True prophylaxis in a woman of child-bearing age who has had one or more well marked attacks of appendicitis is an interval operation. It goes without saying that constipation is to be avoided and that other hygienic precautions are to be observed.

17. A definite and accurate diagnosis of acute, chronic or recurrent appendicitis, irrespective of the stage of pregnancy, invariably calls for operation. The disease during pregnancy runs such a rapid, destructive course that delay is hazardous. Operation should be early and immediate. A case may be rendered hopeless by hesitation and inaction. Temporizing methods are extremely dangerous.

18. Treat appendicitis in the pregnant female as you treat it in the non-pregnant. Every pregnant woman who is a subject of appendicitis should be operated on just as soon as the diagnosis is made, whether the attack is the first, second or third.

The unusual risks of leaving a diseased appendix in the abdominal cavity are much increased by the pregnant state and the evil consequences of another attack, i. e., gangrene or perforation will be correspondingly greater. The danger of recurrence in the later months of pregnancy and in the child-bed period calls for operation preferably during the attack. If the patient is not seen in time, one will do the next best thing, an interval operation during the pregnancy. Pregnancy is an additional indication for operation in cases of appendicitis.

19. In inflammatory disease of the appendix, the ideal operation is appendectomy. In some cases, however, one has to be content with incision, evacuation and drainage of an appendiceal abscess. Exceptionally drainage of abscesses in Douglas' pouch may be affected through the vagina or rectum. Pus should be evacuated irrespective of uterine contents, and irrespective of its location.

20. It is well to keep in mind that for an

appendectomy the median incision is contraindicated in the later months of pregnancy, that it is best to avoid or to reduce to a minimum the manipulations of the uterus; opiates are indicated in the after treatment. Labor when it occurs shortly after a laparotomy is not to be unduly prolonged; it may have to be assisted.

25 E. Washington Street.

(Dr. Heineck's reprints will contain an elaborate bibliography.)

A NEW PROCEDURE IN THE DIAGNOSIS AND DETERMINATION OF CURE OF GONORRHEA.*

LOUIS D. SMITH, B. S., M. D.

CHICAGO

The diagnosis of gonorrhea offhand appears peremptory, and any new suggestions seem superfluous. We are satisfied with the belief that the causative organism is biscuit shaped, gram negative, intracellular. Doubt, however, exists as to a definite time for the obsequies on the gonococcus, and it is often with great uncertainty and temerity that a patient is unshackled from all restraint in the manner of living, particularly when that patient is married.

Briefly, there are but few difficulties presented in the diagnosis of gonorrhea in the male. The ordinary pyogenic organisms to be differentiated by smear examinations in urethritis are, staphylococcus (which in urethral inflammations is known to be pleomorphic, having often all the morphologic characteristics of the gonococcus), the streptococcus, micrococcus catarrhalis, short colon bacillus. These difficulties loom prominent in old cases, wherein the original invading gonococcus may be difficult of recognition in the presence of secondary invaders.

In the female case the physician is usually in a quandary as to diagnosis. An acute early case, where the diagnosis is at times readily made, is not usual. In the average cases the patient is not cognizant of anything seriously abnormal, or she is hopeful that the "whites" will soon let up, regardless of its cause. A definite diagnosis by smear examination in this type of case is futile.

Were the identification of the gonococcus by culture simple and certain, this would unques-

*Read before the Chicago Medical Society, Feb. 7, 1917.

tionably be the method of choice. A "no gonococcus growth," unfortunately, does not signify an absence of such an infection.

The complement fixation test of today is excellent in its limited field. In the complications in the male, such as epididymitis, prostatitis, seminal vesiculitis, a diagnosis can be made without the test. It is of value in arthritis. In the female, where the greatest difficulty exists, it may or may not help. A negative test does not preclude the possibility of the presence of the gonococcus. In old cases of cervicitis, metritis and salpingitis it would be positive. In either sex, as complications are not the rule, the value of the present test is curtailed.

For the early diagnosis of early gonorrhea, when the biological test is of no avail in male or female, we must, after all, seek out the gonococcus. Recognition of this organism *per se* being attended with serious difficulties at times, there still remain typical generic reactions dependent on the organism and its autolytic products in the principle of the complement fixation test. Whereas, in the present antigen-amboceptor-complement reaction we seek the amboceptor in the blood of the patient, a unit to be found only in complications wherein the human body attempts a defense against the gonococcus or its toxins, in the author's test to be described, we seek the antigen present at all times in this disease, because it constitutes the ever present gonococcus itself, or its metabolic products.

The first experiments were directed to determine the proper, most constant and effective sources of antibody (amboceptor), and its standardization. Herein lay only two choices, the blood serum of a patient that yielded a strongly positive complement fixation test for gonorrhea, and the commercially prepared antigenococcic serum. The experiments consisted of the performance of the typical complement fixation test, employing increasing quantities of dilutions of both the human and antigenococcic horse serum with normal salt solution as the diluent. Omitting details of the well-known reaction, it was found that with the human serum, four drops from a 1.5 mm. bore glass dropper of a 1-2 dilution, and with this particular antigenococcic serum (P. D. & Co. 026960) 1 drop of 1-27 dilution gave the best reactions. This standardization can, of course, be made with the volumetric

system, if one employs that system in the performance of the complement fixation test.

In view of the fact that gonorrheal antibody was found to be present in good strength in the commercial horse serum, preference is given this artificial antibody, because the source is more dependable and constant, it reacts in higher dilutions and smaller quantities, and it can be kept almost indefinitely without spoiling—although as a rule a somewhat more delicate reaction was obtained with good human serum.

The second series of experiments was conducted to determine the method of preparation of the material suspected of containing the gonococcus (antigen), such as, urethral, vaginal, cervical, prostatic, seminal vesicular discharges. In the first experiments this antigen was, of course, supplied by the commercially prepared gonococcic antigen.

To begin with, known cases of gonorrhea were selected. As controls, five normal urines, three cases of colon and one of typhoid bacilluria, two of non-specific urethritis and five cases of ordinary leucorrhea in women were tested—all exhibiting negative reactions.

The following is a detailed account of the best methods evolved for preparing the specimens from the various possible sources:

Urine.

The patient who has refrained from urinating for several hours (preferably over night) prior to inspection, is asked to empty his urine into a glass. The urine is permitted to stand until the pus or sediment settles. The top urine is then decanted off, and the remainder well-shaken is centrifuged for a few moments, throwing the organisms down together with the pus. The supernatant fluid is discarded, and upon the residue is poured normal salt solution. The amount of salt solution used depends upon the amount of residue, viz.: with a heavy residue use a larger amount of salt. Grind this mixture in a glass mortar for a few moments. Permit this to stand at room temperature or in an ice chest, it matters little, for several hours, preferably over night, then heat to 56 degrees Centigrade for half an hour. If the suspension is thick, centrifuge for a few *seconds*, so as to obtain a faintly turbid supernatant fluid. If the sediment in the original specimen of urine is scant, indicating little pus, and when the sus-

No.	Patient	Nature of Case	Duration of Disease	Treatment	Source of Specimen	Heated at 56 deg. Cent. 1/2 hour	Anti-gonococci Serum	Human Serum	No. of Drops or Suspension												REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
									1st Test			2nd Test				3rd Test																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
									2	4	6	8	2	4	6	8	2	4	6	8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
1	S. B.	Ant. Ureth.	10 hours	None	Urine Sediment	Yes	Yes		0	+	+++																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																

[illegible]

A* Anticomplementary, i. e., the control in the second row corresponding to this amount of the suspension, inhibits hemolysis.

0 Indicates a negative reaction (hemolysis).

† The number of † signs indicates the degree of positiveness (inhibition of hemolysis), as used in interpreting the Wassermann test.

pension is but slightly turbid use the mixture as such after heating, omitting the second centrifugation. As the proper preparation of this suspension is the most essential of all details in the performance of the test, it is necessary through practice to become familiar with the appearance of a correct specimen suspension.

Urethral Discharge. Having instructed the patient not to urinate for several hours, stroke the penis forward beginning at the bulb, and collect the expressed discharge as it appears at the meatus, either on a cotton swab, or, if abundant, let it drip into a small test tube containing 2 cc. normal salt solution. If collected on the swab, which may even be permitted to dry, immerse the swab in a tube containing normal salt solution, stirring vigorously, and let it soak thus over night, when it is ground in a mortar. If the pus is collected directly in the salt solution, this is ground immediately and permitted to stand over night. The specimens collected in either fashion are heated then at 56 degrees for half an hour, and are then ready for use.

As a rule, the suspensions in these cases are ready for use after the preparation thus described. Should the suspension be too turbid or contain floaters, thus spoiling its homogeneity, as often happens when collected by swab, centrifugalize for just a few seconds prior to using, so as to throw these floaters down.

Prostatic and Seminal Vesicle Secretion. With the patient retaining urine in his bladder, the prostate and vesicles are massaged, and the secretion, if abundant, is collected in a tube and diluted with normal salt solution, and treated thenceforth as is the urethral discharge so collected. If scant after massage, the patient is requested to urinate after the massage into a glass. The specimen thus obtained is then treated as described in the case of urine.

Vaginal and Cervical Discharges. Through a speculum the vaginal or cervical discharges, preferably both, are collected on long applicators and treated exactly as is the urethral discharge.

The principle of the treatment of the specimens, as described, is evolved from the fact that the organisms are thrown down into the sediment by centrifugalizing, thus concentrating them or their products. It is a recognized fact that the gonococcus is readily autolyzed, even

in its media of growth, and the salt solution added to the sediment acts as an additional autolyzing agent and solvent. The process of autolysis is enhanced by grinding in a mortar.

The effect of heating the specimen is not certain, except as will be observed from the case reports, unheated specimens known to contain the gonococcus and yielding at times negative reactions, properly became positive after heating. Perhaps heating aids dissolution of the gonococcus. It was likewise observed that a specimen kept over night yielded a more definite, clean-cut reaction than one prepared the same day of the test, probably because autolysis and solution of the autolytic products were more complete. In fact, positive reactions were correctly obtained in specimens twenty-four hours old, that yielded negative when fresh.

A further very important observation in the preparation of the material was the fact that specimens, too thick, or containing sediment not sufficiently dilute, gave very irregular reactions in the same test, making an interpretation impossible. The proper dilution is important, but there can be no fixed rule. The dilution theoretically depends upon the number of gonococci present in the specimen, but a count is not practical. The best rule to follow is to make the specimen more dilute when in doubt, for increasing amounts of the suspension are used in the test, and the same effect is obtained as with a concentrated specimen without the deleterious encumbrances.

Technic of Test. In the performance of the test hot water bath incubation has been employed in preference to the incubator, and in this fashion the time required has been cut in half.

Arrange for each specimen to be tested, ten tubes (of the kind used in the Wassermann test) in a rack, as follows: four in the first row, four in the second, one in the third, and one in the fourth. To each tube add 2 cc. normal salt solution. To each tube in the first row and the only tube in the third add one drop of a 1-29 dilution (this dilution depending upon the previous titration) of antgonococcic serum (one part antgonococcic serum and 28 parts normal salt solution). Now add the specimen to be tested and prepared as previously described as follows: In the first tubes of the first and second rows add two drops of the prepared specimen; in the second tubes of the first two rows

four drops; in the third tubes six drops; in the fourth tubes eight drops. In the only tube of the fourth row also add eight drops of the specimen. Now add complement in proper amount according to standardization, as in the Wassermann test, to all tubes except the one in the fourth row. Incubate in the water bath at 37.6 degrees Centigrade for one-half hour. At the end of this period add amboceptor and corpuscles as in the Wassermann test. Return to hot water bath for continued incubation, and prepare for readings.

Explanation. The first row contains all the ingredients and constitutes the test. The second row controls the first—to determine the effect of the specimen itself without the gonococcic amboceptor on the hemolytic system. The third row tube is a control on the gonococcic amboceptor; whereas, the fourth row tube determines whether the specimen in the largest amount used is in itself hemolytic to the corpuscles.

Readings. As in the Wassermann test, an inhibition of hemolysis indicates a positive reaction; the more complete the inhibition, the stronger the degree of positiveness. It is advisable that the readings be taken as soon and as often as possible, for hemolysis may proceed to a certain extent in the most positive case if permitted to stand too long. A final interpretation can usually be definitely made within fifteen minutes with the water bath method of incubation.

Some specimens are anticomplementary, that is, inhibit hemolysis in themselves even in small amounts. A reading is possible, however, so long as the first control in the second row hemolyzes. It is best in such a case to dilute the specimen and repeat the test without additional heating to 56 degrees.

Commentary. Keeping in mind the principle of this test as described, it should be possible to diagnose gonorrhea at its very inception. And so it is. This is applicable to all cases, male or female, regardless of the source of the specimen.

It is further possible, as will be seen from the case reports, to frequently locate the site or source of the gonococcus, as in exacerbations, and chronic cases resistant to treatment. For example, in the absence of a urethral discharge during a remission, a specimen to be tested is obtained from the urine voided into a glass.

Additional urine is kept in reserve in the bladder. Then the prostate and vesicles are massaged, and the residual urine expelled. Specimens prepared separately from these two portions of urine are tested. Should the first portion be negative and the second positive, the infection can then readily be traced to the prostate and vesicles. Should both specimens be negative, at another examination, after voiding some urine which should be discarded, a bougie or sound is passed, the penis massaged with the instrument in situ, and then the residual urine is expelled and preserved for preparation. In so doing secretions from the crypts along the urethra, such as Littre glands, and organisms forced out with the desquamated superficial lining of the urethra are expressed and collected in the stream of urine voided. Thus a glandular urethritis is determined.

If a positive test of this kind indicates the presence of the gonococcus, then a negative test should be indicative of the disappearance of this organism in a case under treatment, since this is a true complement-fixation test. Whether a single negative reaction is reliable evidence of a cure, I am unwilling to state. In my experience, as yet limited, it has proven true with the technic of the test as described and with the proper preparation of the specimens as outlined. However, before pronouncing a cure, the test should be applied to material from all possible sources in the patient, and repeated if necessary.

CONCLUSION.

In conclusion, it appears from the cases thus described, employing the principles of complement-fixation, that we have a test that determines the presence of the gonococcus in any manner of discharge from any accessible location and at the very inception of the disease. It has been a harbinger of an exacerbation, even before any subjective or objective signs or symptoms indicate it. Specimens for the test are easily collected and prepared without any discomfort to the patient. It is possible to locate the focus of infection, serving thus as a guide to the proper treatment. It has been especially valuable in the diagnosis of gonorrhea in the female. Finally, it is a reasonably certain aid in the determination of a cure.

25 E. Washington St.

DISCUSSION OF CLINICAL LABORATORY, X-RAY AND AUTOPSY FINDINGS IN AN OBSCURE INTESTINAL DISORDER.*

HORACE M. FRANCIS, M. D.
WOODSTOCK, ILLINOIS.

I could not come before you with any gems of scientific discovery gleaned from an extensive series of cases for I have had no extensive series. I have had only the mixed assortment of disorders that come to the man in general practice. Occasionally, however, I work on an especially puzzling and instructive patient, and it is concerning the last few weeks of one of these that I shall speak today. My idea is to point out a few mistakes and make a partial statement of how they might have been avoided.

The patient was a man aged 46 years, married and the father of several healthy children. Eighteen years before coming to me he had had a severe typhoid with cerebral complications. Fourteen years before he had an attack of severe pain in the abdomen that lasted a month. Ten years before, rheumatism in the left hip had laid him up for three months. An anal fistula bothered him nine years before but was cured. His last disability was of thirteen months' duration when he first came to me, and caused his death six months later. While unloading freight he had fallen about four feet, bruising his right lower ribs on the edge of a platform and with a heavy package on top of him. He was in bed for seventeen days, and from that time on was entirely unable to work, having trouble both with his right side and with his right shoulder, which also was injured by his fall. During the earlier weeks, his shoulder caused the more trouble and overshadowed the condition of his side. His abdomen in the liver region, gave him some discomfort right along, but his first real suffering began about three months after the accident. He had acute abdominal distress and passed a little blood per rectum. A month later he ate a boiled dinner and was in distress for three days. He then passed a quantity of bloody pus and felt at once relieved. As he suffered comparatively little he did not remember details as accurately as he did of later and more severe attacks, the first of which followed in about two

months. This time his distress was located definitely in the right upper quadrant, lasted eight days and slowly subsided. It was called appendicitis. Three days later he was again acutely ill and went to the hospital for operation, the diagnosis being appendicitis, or perhaps ileus, because of some general abdominal symptoms. I was asked to administer the anesthetic. When just about asleep, the anesthetic being ether, he went into collapse, and I had to send him from the table before the operation was even started, which, by the way, is the only circumstance of that kind that I have encountered in almost a thousand anesthetics. The following day he passed a large slimy bloody mass and recovered partially. After two weeks of moderate illness he experienced an exacerbation, passed about a teacupful of pus and blood and promptly felt better.

For the last two months before coming to me he had had repeated attacks, becoming more and more frequent. All the attacks were similar. After several days of comparative comfort he would begin to have increasing distress with a feeling of fullness in the right upper quadrant of the abdomen, then several hours of severe pain and cramps followed by the passage of pus and some blood, then prompt relief. He was cold all the while, but had no definite chills. He sweat much about the mouth, occasionally all over. He was getting weaker but had not lost much in weight. Two hours after eating he would have some pain and a full feeling. The essential points in the history when the man came to me were:

Severe injury in the region of the liver followed by complete disability, and a few weeks later by intermittent attacks of right upper quadrant, pain and distress, with a feeling of fullness and followed by cramps, and immediately relieved by the passage of bloody pus. Moreover he looked like a sick man.

Examination revealed an exceedingly foul breath, but only three carious teeth and a fairly healthy nose and throat. The chest was clear excepting a "soft" heart. The abdomen showed only great tenderness in the right upper quadrant and along the transverse colon. The right lower quadrant was not tender and no palpable abnormalities whatever were found. The urine showed quantities of calcium oxalate crystals and a very few leucocytes, epithelial cells, and gran-

*Read before the Tri-State District Medical Society at Freeport, Sept. 27, 1916.

ular casts. Hemoglobin, Talquist scale, was 85 per cent. W. B. C. numbered 13,320, of which 81 per cent. were polymorphonuclears.

Immediately after this examination I observed one of his bad spells and found it just as he described previous attacks. During the height of the attack there was considerable rigidity and great tenderness, and an exceedingly tender indefinite mass below the liver. At least I thought there was. Temperature ranged from 99 to 100; pulse about 100. After six days he passed pus and some blood and was relieved. I could not account for the low pulse and temperature but made a diagnosis of post-traumatic abscess intermittently discharging into the intestine; and hedged with a suggestion of malignancy. As he was a poor risk I urged him to go to Chicago for operation. Just before going he passed a feathery mass about the size of a cherry. Under the microscope I thought I made out masses of epithelium. It should have been sectioned and stained, but as he was about to go to one of the largest and best of the Chicago hospitals I spared them this expense. I offered it to the hospital but they did not want it.

At the end of a week he was transferred from the surgical to the medical service and after another month sent home "cured." I examined the hospital records some time later and found the following:

R. B. C., 3,570,000.

Hb., 56 per cent—note the rapid drop from the 85 per cent that I had found about two weeks previously.

W. B. C., 15,400, of which 84 per cent were polymorphonuclears.

Urine, normal.

Feces, normal; no pus or blood.

X-ray, taken and interpreted by a man of unquestioned ability, showed adhesions about the colon at the pelvic brim, "as of an old colitis."

Colon, spastic.

No organic defects whatever were found.

A tender spot was found medial to the cecum and below the transverse colon. (They agreed with me in one particular anyway.)

Heart, normal.

Treatment, in the hospital, consisted of ichthyol enemas, oil of paraffine, coarse diet and fats.

Through three different channels I got the diagnoses, "static colitis," "spastic colitis" and "mucous colitis."

On the patient's return home he took to his bed and failed rapidly. He no longer passed evident blood but often passed pus. Considerably jarred by the hospital report, disagreeing

with the diagnosis and disapproving of the treatment, and being unable to secure consent to operation I retired from the case. I kept it steadfastly in mind at this time that he looked like a very sick man. Four weeks later I was recalled, found an easy diagnosis and a moribund patient. Cachexia was marked, prostration complete, and a bloody and purulent diarrhea distressing. Cramping pains were almost continuous. Attendants said that his food passed from him within an hour and almost as eaten. This, of course, I took to be an exaggeration. A week later he was vomiting blood. Pain extended over to the left upper quadrant for the first time. Ten weeks after leaving the hospital he died. Probably as the condition increased and emaciation progressed I might have found something by careful abdominal palpation, but as he was beyond help, I did not care to add to his distress. My treatment after being recalled to the case was mostly morphin.

Autopsy showed:

Heart was small, pale, thin, soft and friable, explaining the experience with the anesthetic. In Chicago the heart was found normal.

There was a healed plastic appendicitis which probably explained the month of abdominal pain fourteen years before.

In the right upper quadrant of the abdomen, the site of all the pain and tenderness, was absolutely nothing abnormal excepting an extremely thin distended colon, which distension explained the pain and full feeling, at least that occurring late.

Practically all the pathology was in the region of the splenic flexure of the colon. Here the colon was loosely adherent to the diaphragm and spleen. A dense carcinomatous mass involved about eight inches of the length of the colon and about half its circumference, principally on the posterior and superior walls. A few mesenteric glands were enlarged. The tail of the pancreas was involved by direct continuity, as was the greater curvature of the stomach, through which a perforation admitting three fingers connected the stomach directly with the descending colon.

My problem is, "Where could I have done better in the management of this case and could the man have been helped?" His ability to stand a resection was very doubtful, but the limited metastases suggests that early excision might have cured. Anastomosis certainly would have saved him weeks of agony. This history suggests that the x-ray cannot be relied upon too implicitly and should not entirely negative clinical findings. The spastic appearance of the

colon was probably the carcinomatous narrowing of the lumen. It suggests further that a man who has studied a patient carefully should not too readily accept the radically differing diagnosis of the busy specialists. The drop in hemoglobin from 85 per cent to 56 per cent could not have been entirely error in estimation, but was probably due to continued hemorrhage, which should have been discovered. The laboratory report of normal feces I am utterly unable to explain. The tenderness in the right upper quadrant, found both by me and in Chicago, I cannot explain. This man's symptoms developed a little too late for post-traumatic abscess and yet, I believe, not late enough for that to be impossible. The leucocyte count, pulse and temperature were all a little low for pus, but I have repeatedly observed them fully as low or lower in chronic hidden abscesses. Perhaps the most significant point overlooked was the history of the passing of blood first of all. Above all, this experience has proven only another instance that has impressed on me the advisability of a long comprehensive inspection of your patient and estimation of what he looks like as advised by our old teacher Senn, and as exemplified in several of the older generation with whom I have been associated.

THE SURGICAL CARE OF TRACHOMA AND ITS SEQUELAE.*

EDWARD E. EDMONDSON, M. D., Oph. D.

MT. VERNON, ILLINOIS.

Some time ago I operated on an old trachoma case for entropion of both upper lids. The lids were perfectly bald. Some six months later the patient's daughter, who is almost 30 years of age, remarked to me that it seemed so odd to see her mother with eye-lashes—that she had never seen her with lashes before. This led me to think how long-suffering some of these cases have been. Think of pulling out eye-lashes every day for more than 30 years!

The simplicity of the operation for entropion due to trachoma is so easily mastered that it seems in 30 years she would have fallen into the hands of some one who would have given her relief.

The entropion operation I am doing and on which I reported in a paper before the Illinois Medical Society last May is simpler than the published accounts of other operations and differs from the others in that it does not cut the tarsal plate nor a groove in it in correcting the deformity. My operation requires a dissection of the lower edge of the tarsal plate from the edge of the lid, and also a portion of the conjunctival surface. This gives a new relation of the plate to the lid and therefore does not admit of so much shrinkage, and the consequent relapse of the entropion condition. In all other particulars it is the same method as that used by other operators.

The Removal of the Granulations. The removal of the granulations is accomplished by means of the olive-shaped trachoma rasp followed by Knapp's roller forceps with just enough pressure to express the trachoma follicles, this in turn to be followed with grattage of the lid by means of the finger wrapped with gauze dipped in a 1:1000 bichloride of mercury solution. Powdered boric acid is then massaged into the lids and hot applications used on the eye for two hours, and the daily use of White's ointment until the patient is well. This routine operation is so simple and easy of performance and causes so little trauma that it can be repeated if necessary. The criticism offered to the roller forceps is properly directed to its misuse, but its proper use is of material advantage in the treatment of trachoma in the extrusive stage. Trachoma in the cicatricial stage does not need the use of expression methods and therefore nothing but harm can come from rasp or forceps in this stage.

Distichiasis. Multiple rows of lashes usually require the use of the galvano-cautery. This procedure can be taken in easy stages, and a few lashes removed at each sitting till all are removed that are offending.

Ulceration of the Cornea. Ulceration of the cornea may be due to the presence of granulations or to lashes that produce abrasions of the cornea. The treatment of the ulceration requires not only the removal of the cause but also very careful treatment to prevent spread of the ulcer and the formation of scar tissue. This latter cannot be wholly prevented for ulceration is

*Read before the Southern Illinois Medical Society, Nov. 2, 1916.

in its nature scar forming. But the instant use of measures for the removal of the cause are to be instituted and the ulceration is to be treated surgically by the subconjunctival injection of cyanide of mercury and medically by the local application of iodine.

Lids, lashes and ulcer require daily attention till all danger is past.

Shrinkage of the Conjunctiva. When the conjunctiva is shrunken to the extent that the transitional folds are absorbed motion of the eye is impeded, and as the shrinkage continues the motion of the eye ball becomes more and more limited till practically fixation takes place and the patient feels great inconvenience from the tugging sensation on attempting motion.

The treatment of this distressing complication is begun by the local use of dionin in the form of an ointment, first using 5 per cent, and when this strength fails to produce sufficient reaction increase the strength to 10 per cent, which in my hands has sufficiently relaxed the conjunctival sacs to give great relief, but where there is failure of the lids to cover the cornea when the eye is closed the conjunctival sac should be loosened at the transitional folds and the lid drawn forward with either sutures or adhesive strips till the new relationship has been established, when the other lid may be treated in the same way, thus giving the lids freedom from the effect of the shrunken sacs. This treatment is the one used in cases where the lids do not cover the cornea, and the cornea becomes dry and exfoliates. I have some cases now under observation, but it is too early to report more than to say they are improving and the patients seem very much encouraged.

Pannus. There is ground for thinking that pannus is a protective measure of the eye ball for the purpose of preventing the granulations from denuding the cornea and producing ulceration, but that this purpose, if such it is, fails in many instances is experienced by all observers, and while pannus serves to offer some measure of protection to the cornea possibly, it reduces the vision gradually or rapidly to perception of light. I have found that the removal of the granulations and the use of dionin in 5 per cent. and later in 10 per cent ointment is the surest routine treatment for this condition.

HEMORRHOIDAL CONSIDERATION WITH REFERENCE TO MODERN IDEAS,*

ROLLIN H. BARNES, M. D.,

Editor of The Proctologist and Gastroenterologist, Fellow of
the American Proctologic Society.

ST. LOUIS, MISSOURI.

Generally hemorrhoids are considered a minor disease, not that they do not produce suffering, but that they are a local disease and have little effect on health; that it is not necessary that they should be relieved. It is also considered that rough or careless operative procedures can be withstood in this region better than in other parts and that the repair of mutilating methods is very favorably taken care of by nature. This only adds to the chances taken by careless physicians who have not the training nor the skill to treat the hemorrhoidal condition. I say this because I consider hemorrhoids a manifestation of a condition in the lower bowel that exists very commonly which is the beginning of many systemic conditions that are the result of toxic absorption and evidenced by the appearance of hemorrhoids. Many are the causes given in the literature for hemorrhoids. In fact they are so many that they have led to a confusion as to the etiology.

We should consider hemorrhoids a very grave condition and educate the laity to the importance of having them corrected and not allow them to continue to exist, so that they will produce toxic effects which lead to kidney and heart lesions and rheumatic conditions. These toxic absorptions lead also to nerve lesions. You do not find any of these cases that have existed for any length of time that do not give evidence of nervousness. The treatment of hemorrhoids is largely a question of preventative medicine. Hemorrhoids do not merely mean the enlargement of a plexus of veins but an inflammatory condition of the lower part of the alimentary canal. This inflammatory condition exists before the hemorrhoids are formed, and is the causative factor in their production. This catarrhal condition of the mucous membrane overlying the hemorrhoidal plexus weakens it and the veins dilate. As they dilate they act as foreign bodies and become more irritated, causing greater inflammatory processes that result in new tissue

*Read before the Southern Illinois Medical Association, Nov. 2, 1916.

formation. As this process continues these enlargements tend to follow the general rule of all growths in this region by being dragged down and eventually prolapse, forming the hemorrhoidal condition that we usually find when these patients consult us. These patients do not suffer when there is little acute inflammatory condition present, and this is the reason that they are fooled by the use of advertised ointments that have a tendency to contract, and relieve the acute inflammatory process, but it is impossible to cure them by such means after the hemorrhoids have once formed.

Treatment. There is no question in my mind that the text-book methods we find today are obsolete. The success in curing hemorrhoids rests upon obtaining a smooth, clean, mucous surface of the anal canal. The reason that we have the recurrence of hemorrhoids and the poor results are due to the methods we use. I believe that it is impossible to obtain this smooth anal canal with any method that depends upon a slough. I cannot understand how, except by accident, that by the means of such a method we can remove the desired amount of tissue so that we have remaining this smooth surface that is so desirable. We are told that the injection method acts without a slough. This is questionable in my mind and the best that we can say of the injection method is that it is a makeshift method, and we find this proved from the fact that there is a greater percentage of recurrences following this method than any other. The Whitehead operation is seldom indicated and hemorrhoids should be treated long before they obtain that stage for which the Whitehead is indicated. I have long taught my students that the Whitehead method is only indicated when we find the removal of the hemorrhoids requires the removal of so much mucous membrane that we have not sufficient left in order that the anal canal can be covered by it. We cannot hope to obtain a fine result with this method and it results in stricture, as has been experienced by St. Mark's Hospital, to the extent of eight per cent.

The method to which I desire to call your attention is the open excision method. It consists of a longitudinal elliptical incision of the hemorrhoid, so that the mucous membrane will coapt. No suture is required because the contraction of the surrounding muscles will cause this incision,

if properly made, to come together. The advantage of doing away with the suture prevents additional exposure to infection, which is always present in this region, for we are not able to make it aseptic. Where the excision extends into the skin surface it may be necessary to place a suture when there is much gaping, but this should not be done unless it becomes absolutely necessary. No plug should be used for the escape of flatus. It is not necessary when your patient has been properly prepared, and it is one of the most torturing appliances that has ever been invented for surgical treatment.

The only criticism that has been made of this method is that of the danger of hemorrhage. You will find that all of the reported deaths in the literature from hemorrhoidal operations have been those due to secondary hemorrhage which occurs from the second to the eighth day after the operation, that is when the slough occurs. The question of hemorrhage with this operation is that of primary hemorrhage, and what surgeon is not able to control primary bleeding from vessels of the size of those found in the hemorrhoidal region? The successful control of hemorrhage is to realize the fact that when you have muscular contraction you will not have hemorrhage. That means that you should not over-stretch your sphincter muscles. The assistance of a tight T-bandage will support the anus and assist in this contraction. Before the patient leaves the operating table you should well satisfy yourself that by clean cut excision, compression, and sometimes the catching of the bleeding blood vessel by the artery forcep that you have done all that is necessary to prevent hemorrhage occurring after your patient has been put to bed. Clean cut wounds do not bleed as freely as the torn ones.

The preparation for the patient should not consist of the use of cathartics, but upon the use of repeated cold enemas until the bowel is thoroughly cleaned out. In the after treatment I move the bowels every day with an enema and direct the patient to use the sitz bath. This not only gets rid of the flatus but keeps the parts clean.

I trust that the profession will begin to realize the importance of curing this common class of disease, which is the beginning of many systemic processes that prove very serious to our

patients; that physicians who desire to use prophylactic methods in treatment will not overlook the importance of caring for and correcting these hemorrhoidal conditions.

PYELOTOMY VS. NEPHROTOMY.

J. WELFELD, M. D.,

Attending Genito-Urinary Surgeon, St. Mary's and American Hospitals.

CHICAGO.

The removal of concretions of the kidney, one of the accomplishments of modern surgery, like most operations, went through various periods of evolution. In the first place in the earlier days, operations for this purpose were rather rare, because the diagnosis was based more or less on guesswork and a determination of the exact location of the stone or stones was next to impossible. It certainly was beyond the reach of any surgeon to even guess at the existence of one or more concretions. The rarity of such operations prevented the development of a proper technique. The search for the stones, after the kidney was once exposed, was not only difficult but often resultless, because surgical starting points were missing. In many instances it led to such a degree of injury of the kidney that eventually extirpation of the organ had to be decided on.

All this changed with the introduction of our modern methods of diagnosis, among which the x-ray plays an important role. Hardly any renal concretion will in these days escape the experienced Roentgenologist. We are now in a position, not only to exactly determine the number of concretions, but it has also become possible to get exact information as to the size and shape of the stones. A good x-ray picture will also furnish us with a fairly distinct outline of the kidney concerned. Additional information may also be obtained by the use of a lead catheter and the injection of such fluids as collargol.

Before this the splitting of the kidney parenchyma was the universal method for the removal of calculi, but after a while certain objectionable features of this method were recognized. In the first place this method was freighted with the essential danger of every nephrotomy, the post-operative hemorrhage, which either proved fatal or forced the surgeon into a secondary

nephrectomy. Then practical and experimental investigations revealed the fact that this way of incising the kidney always led to a very undesirable destruction of excreting parenchyma.

Hemorrhage was considered one of the necessary evils connected with the removal of kidney stones until some operators conceived the idea of approaching the concretions by another route. It forced itself upon the attention of the observers that not only the most frequent location of these calculi is in the pelvis of the kidney, but that even stones located in the calices may be reached and dealt with through the opened renal pelvis. The dissecting, splitting and healing of the pelvis does in no way lead to the loss of any secreting structure, and it simply remained a question of technical feasibility to make this operation, *Pyelotomy*, the operation of choice.

While in general it was conceded that the removal of calculi through pyelotomy was desirable, still the advocates of nephrotomy argued against it on the ground of the vulnerability of the pelvis and the difficulties that may arise if the pelvis is laid bare. Kidneys with concretions are always more or less embedded in adhesions, and so is the pelvis, the stripping of which may lead to considerable oozing or tears which are hard to control. The thinness of the pelvic wall may prevent proper union and the restitution of a normally functioning pelvis. It was furthermore asserted that larger concretions could not be delivered through a mere split in the pelvis, or, if such were attempted, it would lead to irreparable destruction of the pelvic wall.

The details of the operation itself I leave to the surgeon and consider only its advantages. After the pelvis is opened the calculi may be removed with either a spoon, tip of the finger or, being too large for either, may be broken up by means of a crushing forceps and then removed by either of the above means, or else irrigated cut with normal salt solution. Stones embedded in the parenchyma can be forced down into the pelvis and so be removed with a minimum amount of tissue destruction.

The closure of a pelvis is more simple an operation than the closure of a nephrotomy. A line of fine catgut sutures, covered with a layer of fat, according to Kolischer, is all that is necessary.

To recapitulate the advantages of pyelotomy over nephrotomy: first, absence of secreting tissue destruction; second, less danger of hemorrhage; third, infrequency of secondary nephrectomy if hemorrhage does occur; fourth, the possibilities of a better exploration for the stone; fifth, if there is a bi-lateral involvement, the kidney has not been so destroyed that the two together can not functionate sufficiently.

209 S. State St.

PNEUMONIA.*

OMAR OAKLEY HALL, M. D.,
MILFORD, ILLINOIS.

Pneumonia demands renewed attention because of its increased frequency and mortality. It now occupies first place in morbidity and third place in mortality percentages.

The report of the New York Health Department, quoted by Holt, shows that in children under two years of age, respiratory diseases cause 50 per cent more deaths than intestinal diseases, which formerly held first rank.

Dr. Rufus Cole reports the results of the study of 500 cases of lobar pneumonia from the Rockefeller Institute. Dr. Stillman gave a resume a year ago of four years' experience with pneumonia from the same institute. Cole's report shows that of four types of pneumonococci, types I and II were present in 60 to 65 per cent of cases, 10 to 15 per cent were of type III and the remaining 25 per cent were of type IV.

The mouths of 527 healthy persons were examined and pneumococci were found in 254. Less than 12 per cent had the fixed types I and II, 17 per cent had type III and 25 per cent had type IV. When organisms of types I and II were found, it was possible to trace a close association between the persons harboring them and a case of pneumonia of the same type. These two organisms tend to disappear from the mouth after a short time, just as they do after convalescence from pneumonia. The interpretation of these facts seems to be that they are to be considered specifically infectious. The infection is probably autogenous in pneumonias due to type

IV organisms, and isolation of such patients should probably not be required. With regards to type III, the interpretation of data is difficult. They are virulent, yet widely distributed in healthy mouths, but the questions of infection and isolation have not been determined.

In Dr. Cole's hands, bacterial vaccines have been unproductive of good. But serums from horses immunized to types I, II and III have been prepared and used. The type of pneumococcus is determined in each case before serum treatment is begun. The result of the treatment of cases with type I pneumococci has been gratifying, and there have been but six deaths in 78 cases so treated, a mortality of 8 per cent. This is a great gain over the former death rate of 25 per cent. The effect of serum treatment for types II and III has been disappointing. No serum treatment has been given for type IV.

Rosenow reports a number of cases treated in Cook County Hospital with autolyzed bacterial vaccine. Chill often followed its use and with the exception of a few cases the treatment was unsatisfactory, and its use was not recommended.

Soon after the discovery of the pneumococcus, which is attributed to Fraenkel as the one who demonstrated that it was the cause of pneumonia, experiments were begun with various vaccines and serums, but after a time they were discarded as unsatisfactory. Practically all the various serums and vaccines were used and the return to them would seem like threshing over old straw. As a control to the giving of vaccines and serums, various protein substances and serums, and vaccines from foreign diseases have been injected and crises have been obtained, so that this method of treating disease is yet in the experimental stage only.

Whether we will ever find a vaccine or serum, or whether we will ever find a remedy for pneumonia is doubtful, for doubtless every known substance has been tried.

By the way, a new remedy, optochin, or ethylhydro-euperin is now being experimented with, and the claim is made for it that it is specifically bactericidal for pneumococci. The recommended dose is about 24 grains in 24 hours.

The mortality of pneumonia as given by hospitals where records are kept is under 30 per cent. What it is in private practice and under

*Read before the Iroquois-Ford County Medical Society, March 6, 1917.

more favorable surroundings, or rather in a better class of patients, has not been determined, and is probably different from year to year, I had almost said in different epidemics. It is probably 10 per cent, but careful records are not kept by the great majority of the profession.

We find a considerable number of abortive pneumonia cases with chill, high fever, rusty sputum and subcrepitant rales, but without hepatization of the lung, in which a crisis occurs in 24, 48 or 72 hours, with rapid convalescence. The treatment instituted during that time is liable to be given credit with having aborted the disease.

In regard to the management and medical treatment, certain practices obtain. First, plenty of fresh air around 65 degrees, plenty of water, baths, sunshine and pleasant surroundings, nourishing and easily assimilated food, freedom from visitors and talking and from mental cares and worries, form the essentials of management, with a good nurse. Nearly absolute rest in the horizontal position, but with an occasional change from side to side, unburdened by many covers. Allow nothing that will increase the rapidity of the pulse or respiration.

For remedies, during the first days of high fever, headache and aching, acetphenetidine. Its ability to promote comfort is remarkable.

Morphin for severe pain and codeine for troublesome cough.

As the pulse is usually slow, out of ratio with the respiration, digitalis should be withheld until the heart needs it.

Some would have us believe that aconite, veratrum, tartar emetic, ipecac, blood letting and even lobelia, as our eclectic brethren would suggest, are useful in the early stages. Well, if your fancy turns to the giving of drugs, go to it, for there is plenty of authority for their use. But do not continue them after the pneumonia has become established and hepatization has taken place. Supporting treatment is then required.

Sulphonal and its congeners may be needed to secure sleep.

In the later stages stimulants such as strychnia, camphor, coffee, aromatic spirits of ammonia and compound spirits of ether may prove useful.

Finally, remember that you are treating the patient and not the disease.

INDICATIONS AND RESULTS IN THE RADICAL MASTOID OPERATION WITH A RESUME OF 26 CASES.*

CARROLL B. WELTON, M. D.,
PEORIA.

The danger of confined pus in any of the tissues of the body is well known to all physicians, but when the retention of pus occurs within unyielding bony walls, then the situation becomes extremely dangerous. This is especially the case when accumulations of pus occur in the osseous cavities of the ear, as in no other part of the human organism is there a locality which is so surrounded by such important structures.

Küster was the first to state that "the rational treatment of chronic middle ear suppuration must be based on the surgical principle that a diseased bony cavity should be opened up extensively, all diseased tissue removed and the source of the suppuration brought clearly to light. Only when this is done are the surgical requirements fulfilled." He proposed chiseling away the back wall of the meatus, converting the external auditory canal, mastoid antrum and cells and middle ear all into one cavity. This was the first definite suggestion of what subsequently became known as the radical mastoid operation.

Schwartz was the first to do a mastoid operation that resembles the operation we do at the present for acute mastoiditis. This operation he did for acute and chronic cases. Some of the chronic cases did not recover and Stacke then described an operation that was to cure chronic cases (the radical mastoid operation), and with some modifications is the one performed today for a chronic suppurative otitis media.

The Schwartz method is the accepted procedure for the cases of the acute process.

The radical mastoid operation is an attempt to remove all diseased bone and to provide absolutely free drainage of all infected recesses of the mastoid cells, antrum, aditus, attic and middle ear, by way of the external auditory meatus.

Indications. The most frequent condition which brings these patients to the aural surgeon and from which they seek relief, is the presence of a chronic suppuration from the middle ear. The largest percentage of cases run between 20

*Read at a meeting of the Peoria Medical Society, Feb. 6, 1917.

and 30 years, due to the wish to be relieved of an otorrhea for esthetic reasons only, with little or no realization of the dangers it might bring on. The ages in my 26 cases were from 16 to 62 years, eleven being under 30 years of age and fifteen above 30. There were two patients on whom a double mastoid operation was performed. These patients usually at the suggestion of the attending physician, seek relief for some more or less obscure, though possibly serious symptoms, such as vertigo, severe head pains or a general lassitude, which do not yield to other treatment. Chronic aural suppurations produce a low grade toxemia and it is often difficult to determine just what is the matter with the patient thus affected. A chronic purulent otorrhea is a positive menace in some cases to the life of the patient, but in other cases the danger of intra-cranial extension is exceedingly remote. The responsibility of the surgeon in his advice to a patient in a case of a discharging ear, is a matter of fine distinction. It is his duty, in patients with signs and symptoms demanding it to state positively that the patient's safety requires surgical intervention, but it is, in other cases, no less his duty to state with equal frankness his belief that operation is not required and without emphasis upon remote possibilities which the patient is not likely to experience.

Politzer divides the indications for operation into two classes—subjective and objective.

The subjective are the "persistence of pain in the ear or over the mastoid process. Permanent or intermittent attacks of vertigo, due to erosion of the external semi-circular canal. Marked cerebral disturbance."

The objective symptoms are: "Where a fetid suppuration has existed a year or longer and local treatment to the middle ear for a period of three months has failed to cure."

In a case such as the above, where local treatment has not brought about a cure, the presence of carious bone is assumed, as local treatment to the middle ear means and includes removal of granulations or polypi from the middle ear. After such removal, if the granulations quickly recur and if the discharge continues, carious bone is surely present. To these I would add the following indications:

Frequently recurring middle ear suppuration with preceding malaise, slight or severe head-

aches, temperature and tenderness over mastoid. In such a case it may be assumed that the antrum and mastoid cells are the seat of a sub-acute suppurative process, extension of the bone disease taking place with each succeeding attack.

Another indication for operation in a chronic otorrhea is where the disease is not limited to the tympanum and where operation is prophylactic against fatal results coming without signs of pus retention or visible inflammation of mastoid.

Operation is also indicated in a patient with chronic otorrhea in whom the discharge lessens or stops altogether and pain and tenderness over the mastoid bone follow with relief from these symptoms upon the resumption of the otorrhea.

Chronic suppurative mastoiditis, the result of chronic suppuration of the middle ear, is an operative indication. Such a condition may continue a long time without necrosis of either the medial or the lateral plate of the mastoid antrum. In every case of chronic suppuration in the drum cavity there is a concomitant suppuration in the antrum and sometimes also in the mastoid cells. Chronic suppuration of the mastoid bone may now take one of two courses. Pain in the mastoid with headache and fever without any external mastoid symptoms may indicate an irruption of pus either into the lateral sinus and posterior cranial fossa or forward into the middle cranial fossa, or pain in the mastoid with fever may be followed by tenderness and swelling of the outer mastoid surface and spontaneous opening of the cortex, with escape of pus beneath the dense cutaneous tissues of the mastoid region.

An onset of acute mastoiditis, during the course of a tympanic suppuration, is always an indication for the performance of a radical mastoid operation.

Fistula of mastoid bone, either through the posterior wall of the bony meatus or through the outer cortex, is another indication. In a series of cases of subperiosteal abscess Mygind¹ found that a cortical perforation resulted from an acute mastoid inflammation complicating chronic suppurative otitis media and that in 75 per cent. of these the vault and mastoid cells were filled with cholesteatoma. This observation makes a positive indication for the radical operation in the presence of fistula.

The danger of suppurative labyrinthitis, which

1. Mygind: Sub-periosteal Abscess of the Mastoid Region. *Annals of Otol.*, 1910, p. 529.

has been shown to be due to disintegration or absorption by cholesteatoma upon the bony capsule of the labyrinth also makes an imperative indication for the radical operation with this condition present. A patient in whom cholesteatoma is demonstrated is constantly exposed to the danger of an intracranial complication.

Old healed suppurative cases with sudden marked labyrinthine vertigo is due to spread of inflammation to the labyrinth or pressure from accumulation there. These symptoms may call for the radical operation, but no patient should be subjected to the radical operation until his labyrinth has been carefully tested for evidence of suppurative labyrinthitis. A radical operation cannot be performed in the presence of a suppurative disease of the labyrinth, without taking the greatest risk with the life of the patient, unless at the same time the labyrinth itself is opened and drained.

Where the x-ray shows necrosis, then the radical mastoid operation is indicated. In a large percentage of these chronic cases the middle fossa is found unusually low, the sinus in some instances being so far forward as to occupy the greater part of the antrum, and the x-ray will, in these cases, determine these points.

In bone disease—either a sclerosing or a rarefying osteitis—the operation may be indicated, where such condition produces periodic attacks of mastoid pain after all signs of active trouble in the ear have ceased. (Seven of my cases showed rarefying type of bone disease.)

Another condition which would require operation is a narrowing or complete stricture of the external auditory canal which would lead to the retention of pus.

Other conditions which would necessitate operative interference would be:

Paralysis of the facial nerve. (This would show extensive bone disease and almost always denotes the presence of cholesteatoma and also occurs in tuberculosis.)

Tuberculosis occurring in a chronic suppuration from the ear is another indication. (Pulmonary tuberculosis being a contraindication.)

Any intracranial or sinus involvement or the presence of an oncoming general septicemia would be an indication for the radical mastoid operation.

Also presence of neuro-retinitis or choked disc

occurring in a patient with a chronic suppuration of the ear.

Life insurance companies refuse to accept persons with chronic otorrhea. Patients with such a condition should submit to a radical mastoid operation, not only for the preservation of life, but to enable the individual to occupy a better position in the world.

In children the radical operation is indicated only when there is necrosis in both middle ear and mastoid cells.

Children under 4 years should be treated expectantly.

Children from 5 up, with 2 years' suppuration, in whom there is increasing deafness, may be operated on.

Length of Time of Otorrhea. It is impossible to give statistics as to the length of time the otorrhea had existed, but it is safe to assume from the extent of carious bone found at operation that all of these ears had been discharging for many years. Otorrhea had been present in one 18-year-old girl for 16 years and the time varies from this extreme to one in a 39-year-old woman of 4 years' duration, that being the shortest time of suppuration. In a woman aged 42 the ear had discharged for 10 years. A man 42 years of age had had suppuration for 12 years. In another girl of 25 the ear had discharged for 9 years, and so on. In 200 cases reported by Smith², 15 per cent. of them had discharged for a period under 10 years, in 34 per cent. it had been present from 10 to 20 years and in 51 per cent. its duration was over 20 years.

Average time for after treatment, in my cases, or until complete cessation of all discharge, was 67 days, or a little over two months. The shortest time in which the ear became dry in any case was 8 days, the longest time required after operation was 4½ months. In one patient there was failure to cure the suppuration after operation and in this case otorrhea had been present for 9 years. This occurred in a girl 25 years of age, whose ear was still discharging 15 months after the operation. Ruttin of the Vienna clinic, in a personal communication, stated that they cure suppuration in 70 per cent. of their radical mastoid operations. In Smith's cases complete cure of suppuration was obtained in 80 per cent.

2. Smith, S. MacCuen: End Results of the Radical Mastoid Operation. Trans. Am. Laryn. Rhinol. & Otol. Soc., 1915.

of cases and the average time of after treatment was 3 months. This period of healing in my cases is somewhat shorter than the average time reported by most operators and I believe the difference in time given by other surgeons, whose averages are about 3 months, is due to the lack of treatment given these patients after they leave the hospital, due in a great many instances to the fault of the patients themselves in not returning for the after treatment. Complete dermatization then takes from six weeks to 3 months in the average cases. When suppuration continues after the radical operation, it arises, in a large percentage of cases from the tympanic cavity, involvement of the latter usually being from a still patulous eustachian tube.

Hearing. The degree of hearing usually depends on the condition of the tympanic wall, as to whether the round or oval window has been disturbed during the operation—the hearing should be as good after the operation, in the average case, as before, if the internal ear has not been hurt.

In my cases the hearing was improved in thirteen, there was no change in ten cases and there was an increase in the deafness in three patients. If before operation hearing is very poor and there are no labyrinthine complications, hearing should be improved after the radical operation. If hearing was only moderately impaired, with no labyrinthine involvement, it would remain the same. If hearing was very good, the patient should be told that the operation would probably make the hearing worse. The results of the radical mastoid operation will be better, especially the hearing, when the operation is performed early. In one case a facial paralysis developed after operation, which has almost entirely cleared up at the present time. This occurred in a woman, aged 42, in whom the suppuration had been present intermittently for 10 years following scarlet fever. The ear before operation was filled with polypi and the woman had attacks of dizziness and headache. In Smith's cases facial paralysis came after operation in eight cases and six of them recovered.

Two patients have died, one aged 55, from pneumonia, four months after the time he was operated on, and who had made a complete recovery from the effects of the operation. The other, a man 45 years of age, died three months

after his operation, and it was believed he had entirely recovered. The report of the pathologist at autopsy states, "Psychosis-Organic Dementia." (This man was a patient at the Peoria State Hospital for the Insane.)

Clinical diagnosis not made. Examination of brain. Convolutions somewhat flattened; otherwise normal. On opening the left internal jugular vein, a rather firm, bloody and somewhat fibrinous clot was found. There was marked discoloration of the vein and tissues immediately surrounding. On opening the left lateral sinus, just before it enters the posterior-lacerated foramen, a somewhat purulent looking material was found. Examination of the area of mastoid operation showed it to be clean and free from visible inflammation. Anatomical diagnosis: Thrombosis of left lateral sinus and left internal jugular vein.

This patient never had any clinical symptoms of a sinus thrombosis, his condition, the physicians at the hospital state, being that of a low grade septicemia.

As to the general health of patients after a radical operation, they almost without exception improve and in cases where the chronic otorrhea was of a number of years duration, they state they never before realized what robust health was.

The radical mastoid operation is, as Smith says, "a major surgical procedure when we consider the opportunities for causing irreparable damage. It is safe, however, when done by competent operators, is productive of a maximum amount of good and is wholly justified." As the operation is often performed as the first step for the relief of an intracranial lesion, the recorded mortality, therefore, is due to the complications present and not to the procedure itself. Smith, in his experience, has never seen an intracranial complication develop after a radical operation has been performed. Properly performed, there should not be any deaths, in the absence of cranial complications, from the operation itself.

TUBERCULAR HIP DISEASE IN CHILDREN.*

E. L. HENDRICKS, M. D.,
JANARK, ILLINOIS.

In a paper of this sort I shall necessarily be brief and will confine myself to a consideration

*Read before the Tri-State District Medical Society at Freeport, Sept. 26, 1916.

of the diagnostic features and methods of treatment of this type of tubercular invasion.

Tubercular infections in children are prone to attack the osseous structures and next to the bone of the spine, those of the hip are most frequently affected.

The child will be brought to you complaining of more or less pain, of a slight limp, or both. This pain is especially apt to come on after the child has become tired or been unusually active. It is aggravated by motion of the limb and is apt to come and go at irregular intervals. It is usually dull and aching in type, although it may be neuralgic, and is often referred to the inner side of the thigh, the knee, or even the calf of the leg. At night, the child may cry out sharply during sleep, and waken without consciousness of having had pain. These "starting pains," as they are called, are due to temporary relaxation of muscle spasm, and are not characteristic of tuberculosis, although many cases show them.

The limp is usually slight, appearing after severe exercise or fatigue, and leaving when the child is rested. It may be constant.

The history of the case usually shows that sometime prior to the development of symptoms there has been a fall or injury of some sort to the affected hip. J. B. Murphy particularly emphasized the fact that most tubercular bone infections began after a previous injury. This trauma was not immediately followed by symptoms, but after two or three months trouble developed where the resistance had been lowered.

The child most often appears "run down" and gives a history of failing appetite, loss of weight, and increasing fretfulness. However, one may sometimes find tuberculosis in ruddy, happy looking children. Fever, in the early cases, is not a constant sign.

Upon examination, one may not be able to detect much abnormality. The most constant beginning sign is the markedly rigid attitude in which the limb is held. The position of the leg may be normal, but a marked resistance occurs to motion in certain directions, and such motion is very painful. The trochanter is frequently sensitive to pressure.

Later cases show eversion and abduction of the limb with tilting laterally of the pelvis. There is atrophy and flattening of the gluteal

region, atrophy of the thigh and calf muscles, and, eventually signs of effusion and abscess formation, with shortening of the limb. With this, naturally will occur the signs and symptoms of toxemia.

One is not often able to detect other foci of infection in beginning hip tuberculosis in children. The disease may later become generalized, but usually the hip joint, when attacked, is the primary point of onset. The radiograph, which should never be omitted, if possible to obtain it, will usually show an affected area in the neck or head of the femur, rarely the acetabulum.

The various serum tests are not especially dependable in children.

Tubercular hip disease must be differentiated from strains, caries of the spine, rheumatic arthritis, periostitis, acute poliomyelitis and osteo-arthritis or Perthes disease.

Hip joint disease, in the early stages, is often extremely difficult to diagnose, but all suspicious cases in which nothing else can be discovered, should be regarded as tubercular and treated accordingly, for it is in the early stages, before any marked structural changes have occurred, that the most good can be accomplished by treatment.

The treatment of this condition has been much discussed and opinions differ widely as to the best course to pursue. The line of treatment varies with the time in the disease when the patient is first seen. In any event the indications to be met are relief of muscular spasm, correction of deformity, and rest for the parts.

In the early cases the long traction splint, extending from axilla to sole of foot, with pelvic support and arrangement for extension, has worked well in my hands. The sole of the shoe on the sound limb must be raised from one to two inches. Crutches are advisable the first few months. The splint must be worn six months to one year.

This type of fixation allows exercise and fresh air and at the same time affords rest to the diseased joint by separating the sensitive surfaces and limiting motion of the limb.

It is surprising to note how soon a child will learn to accommodate itself to the apparatus, and if the splint be properly applied, with the requisite amount of traction, relief of pain and muscular spasm is marked and satisfactory.

Some men recommend the recumbent posture, with a long splint and Buck's extension, even in the earliest cases. Others use a plaster jacket from axilla to mid-calf.

Nathan, of New York, after an analysis of 200 cases, contends that we have no known means of limiting the destructive action of the tubercular process and that if we would secure the most useful adult limb, we must adopt the plan of Lorenz, of securing bony ankylosis.

This is best accomplished by the application of a short plaster spica extending from the waist to the knee, and permitting the child to walk. This partly immobilizes the joint and, by pressure, increases the inflammatory reaction, causing firm, bony adhesions between the joint surfaces.

In later stages of the disease, with marked deformity, infiltration of peri-articular tissue and bony destruction, with constitutional symptoms, rest in bed and appropriate fixation of the joint are indicated.

With accumulation of fluid in the joint, Murphy's 2 per cent formalin-glycerin solution should be injected after aspirating.

Tuberculin may be cautiously tried with older children.

Finally, surgery is our principal weapon in advanced cases.

Tonic treatment and a full diet should be used, but constitutional treatment is of less importance than mechanical methods of therapy.

Case 1. Florence V., age seven years; patient first seen in July, 1913. Mother died when patient was three. Cause unknown. One year before consulting me patient fell and struck hip on rocker. Complained of pain for two or three days and then no symptoms occurred for several months.

Some time later, after being greatly fatigued, patient complained bitterly of pain in hip and groin and refused to walk for several hours. Was apparently well the next morning. Several weeks later the same symptoms recurred and lasted a day. Gradually the attacks of pain occurred at shorter intervals and an occasional attack of slight limping came on. About this time she began to lose flesh and her appetite to fail.

When patient was first seen she was having one of her attacks of pain in the groin. She lay with the leg flexed, somewhat everted and abducted, and there was intense muscular spasm, so that every movement of the leg produced pain and was resisted. No swelling of hip. No difference in appearance of hips. She looked pale and sick. Temperature, 99.5 degrees. Aside from the hip, physical examination was negative. Tonsils large and rather red, but not sensitive.

The next day she was better, but there was still intense pain on rotation of the limb and some spasm of the muscles. Slight limp on walking. The pain and muscular spasm persisted and a diagnosis of probable tuberculosis of hip was made and concurred in by Dr. K. F. Snyder, who saw the case with me.

Radiographs showed tubercular focus in neck of the femur, close to the head. A long hip splint, with pelvic support and traction device, was ordered and later applied, with instructions to wear continually. Full diet and a cod liver oil prescription given. Three months later there was no pain on slight motion and no muscular spasm.

Splint was worn for seven months and at the end of that time laid aside. At present (Sept., 1916) she shows no sign of former trouble.

Case 2. Robert L., age 4 years. Family history negative. Injured in 1914, by falling from a child's wagon and rolling down a bank four feet high. Following the accident he complained of pain in the left hip and for a day refused to use his leg.

The second day he was better and rapidly improved, but he had frequent attacks of pain and periods of limping. In the early spring of 1915 the pain and limping became gradually worse, and in April, when I first saw him, were practically constant. He also became very fretful and lost considerable weight, but had no night cries.

April 15, 1915, there was a decided limp. Pain was located on the inner side of the thigh, rarely in the hip joint. Throat, chest, abdomen and back were negative. There was no fever.

The left leg and hip were noticeably smaller than the right. There was some lateral tilting of the pelvis. On reclining the left leg was held partially flexed. Soreness when pressure was made on the left trochanter. Resistance and pain when thigh was flexed on pelvis. No shortening. Radiograph not made.

Tuberculosis was diagnosed and a Phelps' long traction splint ordered and applied. Diet of milk and eggs ordered and pushed. Patient was kept quiet for two or three weeks and then allowed to get about. After a month pain ceased and improvement began. Wore splint six months and then discarded it, against my judgment. This patient, at long intervals, shows a slight limp and I am inclined to think this case to be one of the arrested type, with possibilities of future trouble. At any rate he should be closely watched for evidences of recurrence.

MODERN TREATMENT OF DIABETES.

C. HUBART LOVEWELL, M. D.,

CHICAGO.

During the last few years the opinion has been steadily growing, that diabetes is a disturbance of body function rather than a progressive fatal disease. Macleod has described the

*Read before the Englewood Branch, Chicago Medical Society, Jan. 2, 1917.

condition as follows: First, there is a weakened function of carbohydrate metabolism; next, a weakened function of proteid function, and third, in severe cases, an imperfect metabolism of fats.¹

Allen's² work on dogs confirms this conception and is a more satisfactory working hypothesis than the views of the Vienna School, for neither the idea that diabetes is nothing but the increased production of sugar without the power of utilizing it, nor the pluriglandular doctrine that diabetes is the loss of balance between antagonistic glands have ever been supported by experimental facts. Allen considers diabetes as being due to a weakness of a body function which among other things, needs rest to restore or conserve its physiological activities and it appears to us that this idea is rapidly gaining acceptance among clinical and laboratory workers.

It certainly simplifies our understandings with the patient and I believe contributes in no small way towards securing our patient's active and intelligent co-operation. Thus, to introduce the matter of treatment by assuring the patient that in the majority of cases diabetes is not a disease but a condition that requires rest, renders our restrictive measures intelligible and ensures more favorable results.

Joslin³, one of the most enthusiastic followers of Allen, makes the statement: "It is no exaggeration to say that the advance in the actual treatment of diabetes during the twelve months just passed has been greater than in any year since Rollo's time and it should be emphasized that this improvement in treatment comes, not by chance, but as a result of patient scientific experimentation which has been based upon the work of foremost investigators in both laboratory and clinic."

Time will not permit us to go into the details of this treatment, interesting as they are, and we will only mention some of the basic principles.

The underlying principle of the modern treatment of diabetes is based on the fact that while the true diabetic on a non-restrictive diet invariably becomes progressively worse, each one has some tolerance for food and this tolerance is of such a character as will allow sufficient intake of food to cover the essential energy requirements of the body. By first ascertaining

the amount of this tolerance, he has, by this method of treatment, been able to maintain and even increase the tolerance. It will be noted that there are many of the older proven methods made use of as well as some features that are in direct opposition to the older ideas.

Allen's starvation method of the treatment of diabetes is based on his experiments on depancreatized dogs in which he was able to produce various degrees of glycosuria and acidosis and conditions clinically indistinguishable from those found in human diabetes. He found that primary starvation and a continued low level of nutrition prolonged the life of the animals, whereas high caloric feeding sufficient to maintain nutrition was a sure method of increasing the severity of the symptoms. It is eminently proper to give Allen the credit of being first to see the therapeutic significance of inanition upon the severe cases of diabetes; to prove that depancreatized dogs upon prolonged fasting would become sugar free, and to have the courage of his convictions to apply this principle to human diabetes.

He starves all patients until they are sugar free then slowly adds protein, fat and carbohydrate to the diet, never allowing glycosuria to return and never permitting the patient to exceed their proteid, fat or carbohydrate tolerance, nor to attain more than a decidedly less than normal weight. The one requirement is that the patient must remain free from both glycosuria and acidosis. Any trace of sugar is the signal for a fast day and while the original fast may require from 2 to 10 days to clear up the urine, the subsequent fasts seldom exceed one day. Generally the first thing given after the fast is carbohydrate. Joslin's tables⁵, based on the carbohydrate content of the various vegetables are very helpful in supplying the patient with gradually increasing amounts of starch and sugar. The first day after fasting 150-200 grams of 5 or 6 per cent vegetables are given, this is gradually increased until a trace of sugar appears in the urine which is checked by a fast day. The purpose is to learn the carbohydrate tolerance and to clear up all acidosis.

After this, protein is given in the same manner until the patient shows a glycosuria or reaches a safe proteid ration. In the same manner fats are gradually added, in each instance the

knowledge of tolerance being the essential factor. One of the time honored traditions in the treatment of diabetes was to reduce the starches but to be sure to maintain weight. This Allen⁴ specifically warns against as being one of the chief causes probably of past failures in the treatment of severe cases. He regards the initial loss of weight due to the fasting as decidedly beneficial in itself and in the subsequent treatment, the patient is only allowed to put on weight up to a certain point provided always that there is no glycosuria nor acidosis.

In some severe cases it is found necessary to restrict all classes of food and to keep all safely below the limit of tolerance. Occasionally an extremely low proteid tolerance is found and in such cases all carbohydrates are excluded and only as much proteid as will not bring on glycosuria.

It is encouraging to know that up to the present, experience seems to indicate that every patient can tolerate his necessary minimum and that glycosuria appears only when this indispensable minimum is exceeded. The danger of indiscriminate feeding of fats seems to be in the increase of ketonuria and in some cases both acidosis and glycosuria.

In a general way this represents the newer method of treating the mild and moderately severe cases. As a general rule these patients can be kept free from glycosuria and acidosis and to maintain nutrition sufficient for moderate activities. In addition patients do not complain of the carbohydrate restriction as was so often the case with the older methods of treatment.

In the extremely severe cases special hospital and nursing care is essential and modifications in the treatment may be necessary.

Joslin of Boston, who has had a large experience, states that in some cases it is necessary to modify considerably the method which has been outlined. A gradual restriction first of fat then of proteid and finally of carbohydrate with a gradually decreasing dependence on alkali if patient has been using it to keep down his acidosis, will, in a course of ten days or so, render him sugar free.

Exercise: Active physical exercise just short of uncomfortable fatigue is a very important element in the treatment of the disease. Short periods of vigorous muscular exertion after

meals increases carbohydrate tolerance and assists in the more complete metabolism of all foods, especially the fats. Patients feel better generally, have better appetites and in every way seem to do better. This is particularly true with children and unless there are contra-indications suitable active exercise should be encouraged.

Glycosuria: Allen has discarded entirely the use of Fehling's solution and in its place employs a formula originated by Benedict. This is a modification of Fehling's solution but unlike it does not react with a number of normal and accidental urinary constituents.

When patients are ready to leave the hospital he supplies each with the solution and directs them to make daily tests, whenever they find a reaction it means a reduction in the daily quantities of carbohydrate until the urine becomes sugar free again. This puts a premium, you see, on good behavior and relieves the physician of a lot of burdensome detail. A weekly test by the attendant enables him to direct the diet and put the responsibility on the patient where it belongs. The treatment of acidosis has been greatly simplified and under the modern dietetic treatment seldom reaches a serious grade. When there is a lessened carbohydrate consumption with a lowering of carbohydrate metabolism the fats are often imperfectly burned and as a result the blood becomes charged with the products of this incomplete combustion. Thus in the course of the disease, especially when simply the carbohydrate was removed from the diet, the fats being continued, the fats were imperfectly metabolized and large amounts of the acetone bodies such as acetone, aceto-acetic acid and beta oxybutyric acids were formed. Unless some means are found to prevent this condition these patients ultimately develop coma and die. By strict attention to the rules laid down, Allen has been able to reduce this danger to a minimum. In conditions where there is a great excess of these acids in the blood or where the condition persists for a great length of time the fixed cell bases of the body become overtaxed in the attempt to neutralize them and a lessened or actual depletion of the alkali reserve of the body fluids and cells occurs. This is acidosis and is best determined, not by the excretion of these bodies in the urine, but rather by the condition of the blood.

The presence of acetone, diacetic acid, etc., in

the urine simply shows that there is faulty metabolism with some excretion of these substances and does not necessarily indicate that these patients have an acidosis. Examination of the urine is not sufficient to decide on a condition of acidosis as a strong reaction may be obtained when no acidosis is present and only a faint reaction at the height of a coma of acidosis. Increasing drowsiness and air hunger may warn the observer of coming danger, but today we depend on determinations of the CO_2 tension of the alveolar air or the reserve alkalinity of the blood. The examination of the CO_2 tension by the Marriott method is rapid and easy and if necessary can be checked by observations on the blood plasma. With a careful persistent attention to detail, clinicians have found that the Allen treatment offers a very satisfactory means of prevention of acidosis and of rendering the patient sugar free.

Alveolar Air: It is known that in pathological conditions associated with acidosis there is an increase in the non-volatile acids in the blood and a fall in CO_2 . The evidence may be obtained either by a study of the blood directly or of the alveolar air; the CO_2 tension of the alveolar air being the same as that of the blood.⁶

Marriott in a recent paper⁷ has described a very simple bedside procedure by which the CO_2 tension of the alveolar air may be estimated. With this apparatus anyone can in a very few moments make satisfactory observations and with these as a guide the tendency toward a condition of acidosis may be detected promptly and vigorous prophylactic and remedial measures instituted. The treatment of acidosis is largely dietetic and preventative. Some patients show a tendency toward acidosis in their primary fast and when these show a tension below 25 or 20 the fast should be broken by allowing a restricted diet consisting of green vegetables. Later it has been found these cases can be fasted again till sugar free.

Drugs: As a temporary means of replenishing the depleted alkali reserve of the body sodium bicarbonate may be given; but we should remember that it only neutralizes acids already present in the blood and has absolutely no effect on the formation of acids.

Dietetic regulation must control this and alkali

should only be used to tide patients over dangerous periods. Sodium bicarbonate may be given by mouth and intravenously; 10-15 grain doses may be given by mouth and 300 to 500 mls of a 4 per cent solution intravenously, depending on the degree of acidosis present. The treatment of complications such as acidosis and coma is prophylactic largely; that of gangrene, neuritis, etc., is that of the basic disease itself.

Our experience here in the hospital with the Allen treatment has been very satisfactory as far as we have gone. Some patients do complain at first but after a while they seem to get into the spirit of the thing and are very eager to hear of the first sugar free specimen. Especially is this so if we have several in the ward at the same time. Some cases, as has been said, quickly develop an acidosis on fasting; these of course are more difficult to treat but eventually you are able to remove the glycosuria and the acidosis and the patient continues satisfied with the diet you are giving him. While the treatment has been used for only a comparatively short time and on a limited number of patients we agree with Joslin that we can be reasonably sure of this: It is possible to render patients sugar free—to keep them so at a slightly reduced weight—and to insure them of a measure of physical health and well being that permits many of them to continue in their usual occupations. The attainment of such a condition without the use of drugs and with a diet that is satisfying is certainly a great improvement on our previous methods.

BIBLIOGRAPHY.

1. Macleod J. J. R.: *Diabetes, Its Path. Phys.*, New York, 1913.
2. Allen Fred M.: *Studies concerning Diabetes*, Jour. A. M. A., Sept. 12, 1914, p. 939.
3. Joslin Elliott P.: *Amer. Jour. Med. Sc.*, Oct., 1915.
4. Allen Fred. M.: *Boston Med. & Surg. Jour.*, Feb. 18, 1915.
5. Joslin E. P.: *Boston Med. & Surg.*, Sept. 4, 1913, 348-353.
6. Higgins & Means: *Jour. Pharmacol. & Exper. Ther.*, 1915-7-1.
7. Peabody Francis W.: *Am. Jour. Med. Sc.*, 1916, CLI, 184.
- Howland and Marriott: *Bull. Johns Hopkins Hosp.*, 1916, XXVII, 63.
7. Marriott W. McKim: The determination of Alveolar Carbon Dioxide Tension by a simple method. *The Jour. A. M. A.*, May 20, 1916, p. 1594.

* * *

CASE HISTORIES

Case I.—COURTESY DR. J. K. McQUARRIE.

A German woman (Mrs. H. G.) aged 62 years; weight, 190 pounds; housekeeper by occupation, sought medical advice for severe vulvar pruritis and localized areas of eczema on legs.

Family History—Father dead, tuberculosis. Mother

dead, aged 64 years; stomach trouble. One brother has chronic rheumatism; one brother dead, inflammatory rheumatism; one brother dead, cancer of stomach.

Past History—Usual children's diseases. Never any serious illness. Mother of eight children, three living. Three died of scarlet fever in infancy; 1 died of rheumatic fever; one died of pulmonary tuberculosis, aged 21 years.

Present Illness—For the past ten months has had a very annoying itching of the vulva and in spots on her legs. No record of polydipsia, polyuria, headache or loss of weight.

Examination—On entrance, July 10, 1915, her temperature was 99.6, pulse 86, respirations 24; blood pressure, systolic, 154; diastolic, 72. Blood count, 4,528,000 reds; 7,800 whites. Small mono, lymph., 22 percent; large mono. lymph., 8 percent; polynuclears, 64 percent; eosinophiles, 2 percent; transitionals, 4 percent; urine, sp. gr., 1.034; sugar, 2.5 percent; acetone and diacetic acid negative. Albumin negative. Microscopical: few epithelial and few pus cells; 24-hour specimen: 1,000 cc., sp. gr., 1.030, no albumin; sugar, 5 percent; diacetic acid, negative; microscopical, negative. Chest, negative; abdomen, negative; vulva, reddened, inflamed appearance, with denuded weeping areas, localized areas of moist eczema on thighs. Evidences of itching character of lesions very manifest.

Treatment—Patient was put on fasting treatment with 16 mls. of whiskey in plain coffee every four hours. On the morning of the second day of fast acetone appeared in the urine. Sugar still 5 percent. On the following, the third day of fasting, urine was sugar free, with a trace of acetone still present. She was given 128 mls. clear broth and feeding started with about 100 grams 5 percent vegetables, lettuce, spinach, asparagus, etc. This was gradually increased about 5 grams carbohydrate each day for three days when 20 grams of proteid in form of eggs were given. She remained sugar free and already felt less itching and discomfort. She was in the hospital 26 days. Weight on discharge 176, a loss of 14 lbs., but symptomatically well and satisfied with her diet which consisted of definite portions of asparagus, potato, bran biscuits, butter, orange, celery, eggs, string-beans, tomatoes and bacon. Reports—"free from symptoms."

Case 2.—Mrs. G. American housewife, aged 36 years. Came to Hospital August 8th, 1915, stating that for past few years she had been subject to periodic bilious attacks, at times very severe, lasting from 3 to 5 days and associated with vomiting and headache.

She is a hearty eater and often unusually thirsty. Weighs about 190 lbs. Had gained 100 lbs. in the last twelve years. She tires very easily, has lost in strength, sleeps poorly, and is very nervous.

Family History—Negative.

Past Illness—Unimportant.

Present Complaint—Three weeks ago sugar was

found in the urine when being prepared for a minor surgical operation. Lately has been troubled considerably by a pruritus of the vulva and a furunculosis. Her urine on a regular diet was (24 hr.) 1,150 mls.; sp. gr., 1.023; sugar, * * *; acetone, 0; diacetic acid, 0. 5,200,000 reds; 8,600 whites; differential, normal; hemoglobin, 80 percent; temperature, 98.8; pulse, 102; respiration, 20.

On the second day in hospital she was placed on fasting treatment. 16 mls. of sp. frumenti every four hours, in a little unsweetened coffee. After a somewhat stormy period of five days her urine became sugar free; weight, 185 lbs. During the fast several furuncles appeared on her legs, but these soon disappeared without special treatment. On the morning of the 6th day about 100 grams of 5 percent vegetables were given and later additions were slowly made to these, so that by the 20th day she was getting 200 grams of carbohydrate and 52 grams of proteid, in twenty-four hours. On dismissal from the hospital her urine was 24 hours, 1,350 mls.; sp. gr., 1.014; no albumin, no sugar, no acetone or diacetic acid. Symptomatically well and satisfied with her diet when last heard from 6 mo. go.

Case 3.—Mrs. S. German housewife, widow, aged 46 years, fell while hanging up clothes and received a Colles' fracture of the left wrist. She said she thought that she must have fainted. Routine examination of the urine showed a marked glycosuria. She entered the hospital on Oct. 30, 1915, weighing 160 pounds.

Family History—Negative.

Past Illnesses—Has been ailing off and on for some time past. Occasional attacks of biliousness, with headache and dizziness; swelling of ankles; nocturia, polydipsia, some eczema and decided dyspnea on exertion.

Present Illness—Fell while in a faint and broke her left wrist. Did not remember how it happened, or where she had been.

Present condition—Well nourished; muscles soft and flabby; acetone breath; heart, aortic 2nd accentuated; apex in 6th space mid-clavicular line valves, competent; lungs, negative; abdomen, negative; some pretibial edema, Colles' fracture left wrist. 4,800,000 reds; 6,700 whites; differential, normal. Urine, sp. gr., 1.032; sugar, + + +; albumin, trace, diacetic acid, present*.

She was put on starvation treatment. After a 48-hour fast she became sugar free and remained so during her stay in the hospital. Gradual increase of carbohydrate and proteid as outlined by Joslin and she left the hospital with no diacetic acid or sugar in the urine. Weight on leaving hospital was 155, a loss of 10 lbs. in weight, but with a very much better physical condition.

Case 4.—Miss H. Irish maid; aged 20 years; weight 102 lbs.

Family History—Father dead, tuberculosis; mother dead, stomach trouble; two sisters dead, tuberculosis; one brother dead, pneumonia.

Past History—Usual children's diseases.

'Present Illness—Well until six months ago when she had a gastro-intestinal trouble which was associated with vomiting. A progressive weakness came on with great loss of weight. Her former weight was 130 lbs. and she thinks she has lost a good deal in the last few weeks. Diagnosis of diabetes had been made but diet made her so weak she did not stick to it long.

It required five days of fasting to remove the glycosuria; once requiring a return to coarse vegetable meal to reduce an increasing and alarming acidosis. Eventually she became sugar free, she was dismissed with advice to test her urine every day with Benedict's solution and to return to the office once a week for examination. The nature of her occupation made it rather difficult I imagine for her to stick to any rigid set of rules and I was not surprised when she failed to report as requested, thus passing from my observation.

ALCOHOLISM; ITS PSYCHOLOGY AND ITS RATIONAL CURE BY PSYCHO-THERAPY.*

ALBERT H. BURR, M. D.,
CHICAGO.

Habits, good or evil, are binding forces developed by a repetition of thoughts, sensations, or actions, until they have become more or less automatic in their manifestations. They may operate with or without the conscious knowledge of the individual. They may operate even in the face of the strongest opposition of his conscious will. If these habits are the resultants of narcotic indulgence, then we have added to these binding forces the physiological effects of drugs which greatly complicate the problem of a habit cure.

The demand for alcohol as a beverage is almost universal. It antedates authentic history. It exists among the aboriginal tribes of men as well as among the highest types of civilized races. The psychology of alcohol, according to Prof. Geo. T. W. Patrick, has its fundamental basis, not in its pleasant taste or odor, not in its satisfying food value, for this is negligible, not in the commonly accepted theory of its stimulating properties, for its effects, *per contra*, are sedative and anesthetic; not because it increases mental or physical efficiency, for the experiments of Kraepelin, Fürer and others show that both are impaired even by small doses, and finally not in its social amenities, but chiefly because it pro-

duces a state of lowered tension or relaxation from the too strenuous emotional, mental or physical activities of life.

If alcohol were not toxic to cell protoplasm; if it did not lower mental and physical efficiency even in so-called "moderation," and if it did not strongly tend to excessive indulgence and narcotic bondage, then we might justly acclaim Bacchus in song and dance as the genial author of one of the greatest blessings to man. Unfortunately its use cannot be safeguarded from any of these dangers, and when excessive its toxicity has well known results. As Alderman Joseph H. Francis aptly puts it in his book, "My Last Drink, "It is the monkey wrench in the machinery of efficiency."

In the lives of multitudes of men and women there comes a time when self-control is lost by self-indulgence in alcohol. Let us take up the subject where Prof. Patrick dropped it, and extend our psychological study to the exaggerated, uncontrollable desire for alcohol known as alcoholism or drink habit. The apostle, Paul, one of the clearest logical thinkers of any age, tersely expressed the unfortunate predicament of the hapless alcoholic in his pitiful efforts to reform. Hear him. "The spirit is willing, but the flesh is weak. For to will is present with me but how to perform that which is good I find not, for the good that I would I do not, but the evil which I would not that I do. I find then a law that when I would do good evil is present with me." The psychological law of evil habits, so well formulated by St. Paul, we wish to interpret in its application to that specific form of evil termed alcoholism.

Man in the completeness of his physical body is an aggregate of component cells, every one of which has its separate individuality. Whether it be liver cell, muscle cell, brain cell, or blood cell, it possesses the power of selecting its own nutritive pabulum, of attacking invading enemies, of secreting and excreting its special products and of reproducing and perpetuating itself in co-ordination with its fellows throughout the entire body, by means of the universal protecting and connecting cells of the nervous and circulatory systems. Alexis Carrell demonstrated that the cell-life of bone, skin and entire organs can be maintained for successful transplantation for many months after the death of the parent body. It seems evident, therefore, that there must be

*Read before Chicago Medical Society Feb. 7, 1917.

an inherent intelligence in each cell, a cell mind if you will. Yes, a soul element, for the body is not the man, brain is not intellect, neither does cell structure constitute function. We cannot define this psychic element, we do not know what it is. Edison knows more about electricity and its phenomena, perhaps, than any other man ever did know, but he cannot tell us what it is. He has discovered how to apply some of its laws, however, with marvelous results. We do not know *how* spirit and mentality are coupled up with the material cell structures of our bodies, but the *fact* of such a union is unquestioned. We do not know how they react upon each other, but we are convinced that reactions do occur. From the subjective standpoint of man, psychology has been termed the science of consciousness. From his objective standpoint it has been termed the science of human behavior. Every outward action, therefore, must first have its *corresponding, basic, inner consciousness*. Alcoholic indulgence beyond certain limits soon becomes a repetition habit through which all the body cells become accustomed to a narcotic effect. This creates a conscious crave or hunger that demands repeated gratification. If the habit is interrupted by compelling circumstances, or by force of will the cell memory perpetuates the demand and the crave for drink remains. The evolution of recurring cell habit arises from the cell memory which reproduces the impressions of previous sensations or activities. This cell memory may remain dormant for a time, and then, with or without apparent provocation, it thrusts itself above the threshold of consciousness and becomes a dominating impulse again. This explains the impelling force which drives the dipsomaniac or periodic drinker back to his cups time after time. Many men of intemperate habits, who recover sobriety of life, experience a more or less constant struggle against this psychic crave for drink. As long as this persists the subject is in danger of a relapse. He has not yet become an immune. It seems conclusive, therefore, that we must turn to psychotherapy in some of its effective applications as the only agent that can nullify the psychic force of the alcoholic crave and establish the desired immunity. There is no known drug that has the ability to inhibit the psychic force of any habit created by another drug. Chemical and physiological antidotes for poisons we have,

but not for habits. An analysis of vaunted drug cures will reveal the fact that in the small proportion of cures permanently effected, there is always a concurrent psychic factor, usually overlooked, which has been the real effective agent in the cure and not the drugs administered. Our profession cannot set its disapproval too strongly against the fake drug cures and institutional quackeries that exploit and commercialize the unfortunate victims of alcohol.

Dr. Adolph Meyer, director of the Phipps Psychiatric Clinic of Johns Hopkins University, has truly said: "Habit training is the backbone of psychotherapy; suggestion, merely a step to the end. Action with flesh and bone is the only safe criterion of efficient mental activity; and actions and attitudes and their adaptation is the issue in psycho-therapy." Under given conditions the alcoholic is especially susceptible to the salutary influences of this form of therapy. What are these conditions?

First. Absolute sincerity in his desire to be cured. A favorable antecedent is some strong mental jolt sufficient to arouse in the patient a sense of his abject condition. Something like that which hit the prodigal son when he came to himself. That man who would not take a thousand dollars for his thirst is hopeless.

Second. The intent to become a total abstainer for life. If the patient submits to treatment in the hope of being placed upon a plane of self-control where he will be able to use alcoholics in so-called "moderation" and takes a social glass on occasion, he is doomed to failure. If he indulges such a mental reservation he is not sincere. He must take his stand with that of the late General Frederic D. Grant, who declared, "I do not drink because I dare not, for I have learned that I cannot drink in moderation." "Touch not, taste not, handle not," is the golden rule of safety for the restored drinker. The author recently cured a hard drinker who, many years ago reformed and for thirteen years was a total abstainer. One night at a social function, Manhattan cocktails were served. He pushed his glass aside, but was bantered to eat the cherries which, it was urged, could do no harm, but the brandied fruit aroused the old appetite with irresistible power. He left the table intoxicated and returned to his former intemperate habits.

Third. The ability to co-operate with the phy-

sician. This requires a certain degree of volitional concentration of mind upon the instructions of the operator in his effort to induce a favorable state of heightened susceptibility to appropriate suggestions. He must be able to yield to the induction of a passive or even drowsy and sleepy state. Once this is obtained the patient follows subjectively a train of ideas dictated by the operator and accepts them without question as the very truth. These become dominant rules of conduct when the patient is aroused to the complete objective state again.

Fourth. The resourcefulness and tact of the operating physician. He must understand the adaptation of psychic laws to meet the individual needs of his patient. There is no magic power, no animal magnetism, no mystery in the application of psycho-therapy. The soul, the subjective faculties of the mind, the cellular functions acted upon through suggestion—these are *mysteries*, as are electricity, gravity and life itself. Nevertheless, we have learned important laws concerning all of them and how to utilize them for the welfare of man.

The soul, or "super mind," is the supreme power of the body. The will power of the subjective *soul mind or conscience* can be brought into harmonious co-operation with the will power of the objective *sense, mind or intellect* through properly applied suggestions. The internal conflict between the good and the evil so graphically described by Paul can be repressed and the good made to dominate the evil under a united will. Patients who have been cured of the drink habit by psychotherapy, after repeated institutional drug treatments testify that they are no longer at war within themselves. The lure of alcohol no longer appeals to them. Its psychic influence has been erased from memory by counter suggestions and, therefore, what does not occur to the mind to do (consciously or unconsciously) will not be expressed by corresponding voluntary or involuntary actions.

The crux of this method of treatment lies in *this great fundamental law of human suggestibility*, that whatever is impressed upon the subjective consciousness, during a passive state of the objective faculties, which for the time are placed in abeyance, is received without controversy as reality, and the tendency to act upon it as such becomes a dominating mental force. The application of psychotherapy for the cure of

alcoholism, therefore, is a *rational* therapy, because it is based upon the known laws of suggestibility. It is safe, agreeable and economic, for the patient may continue, or soon resume his vocation during its course, without publicity or undue sacrifice of time and money spent in an institution. Best of all, a permanent cure is more certain than by any other method, for the psychic impulse to drink has been eliminated, the intrinsic struggle is ended, and only extrinsic or accidental causes are to be reckoned with, against which the patient is also fortified by the same suggestive means.

Because of the personal equation psychotherapy in alcoholism is *not infallible*. Only a deliberate voluntary act of the patient, however, could cause a relapse. Psychotherapy does not destroy a man's free will. Any of us can commit an act before the day is done, which may land us in the penitentiary. While such a possibility is universal the probability may be almost *nil*. Finally the ability to produce a *psychic* immunity to the crave for drink *cito, tute et jucunde* is the *supreme merit* of psychotherapy for the cure of alcoholism.

MATTERS MEDICAL PERTAINING TO "MARRIAGE" OR THE PHYSICIAN AS AN EDUCATOR.*

A. J. BUTNER, M. D.,
HARRISBURG, ILL.

The home is the unit of our civilization, the foundation of our social fabric and the foundry wherein are cast the myriads of human characters that people the land.

Each home is a licensed institution operating under the sovereignty of a state, unrestricted in point of production as to either quality or quantity of its progeny.

Few or no requirements of eligibility are made of either contracting party by the various states on application for a marriage license, although an over production of an inferior progeny is polluting the blood of our race with hereditary taints, thereby retarding racial evolution and burdening society with the care of a vast army of mental and physical defectives.

Under the institution of marriage each of the several states recognize a contract made in due

*Read before the Southern Illinois Medical Society, Nov. 2, 1916.

form of law by which a man and a woman reciprocally engage to live with each other during their joint lives and to discharge towards each other the duties imposed by law on the relation of husband and wife, thereby conferring upon each other certain rights, imposing certain obligations and depriving each of certain powers and privileges regardless of the ability of either to fulfill said contract in whole or part thereof.

In most states all persons are able to contract marriage unless they are under the legal age, which ranges from fourteen to eighteen for males and from twelve to sixteen for females, according to the statutes of the several states, while no age limit is fixed by statute in the states of Colorado, Connecticut, Delaware, Florida, Maine, Maryland, Massachusetts, New Jersey, Pennsylvania, Tennessee or Vermont.

The following states have no legislation prohibiting the marriage of either physical or mental defectives: Alabama, Arizona, Arkansas, California, Delaware, Georgia, Idaho, Iowa, Kentucky, Louisiana, Maryland, Montana, Missouri, New Mexico, Nevada, New York, North Carolina, Oregon, Rhode Island, South Dakota, Tennessee, Texas, Virginia, West Virginia, Wyoming and Alaska. But of these states: Arkansas, California, Delaware, Georgia, Idaho, Iowa, Kentucky, Maryland, Montana, Nevada, New York, North Dakota, North Carolina, Oregon, Rhode Island, South Dakota, Virginia, West Virginia and Wyoming soothe their legislative conscience by providing for the annulment of the marriage relationship or a divorce where the parties have contracted the relationship if either or both are mentally unsound.

In the following states marriage is forbidden or if consummated the relationship may be annulled if either or both parties are mentally unsound: Colorado, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Utah, Vermont, Washington and Wisconsin. Specifically these laws prohibit the issuing of marriage license where either of the contracting parties is an idiot, imbecile or of unsound mind or some such similar language. And of these states: Colorado, New Hampshire, North Dakota, Oklahoma, Vermont and Wisconsin, in addition to prohibiting marriage license to mental defectives, also forbid the intermarriage of

persons affected with some transmissible disease such as tuberculosis or a venereal infection, while the states of Colorado and Oklahoma require a physician's certificate that neither party is affected with such disease. North Dakota requires a similar certificate for men only. The Wisconsin law provides a thorough examination of men by the recognized clinical and laboratory tests before a physician can issue such a certificate. The statute of Connecticut penalizes the intermarriage of either a man or a woman where either is an epileptic, imbecile or mentally unsound, when the woman is under forty-five years of age, by imprisonment for three years.

An analysis of the various statutory laws regulating marriage for the purpose of racial betterment reveals the following startling facts:

That in twenty-seven states either or both of the contracting parties may be an idiot, imbecile, epileptic, or of unsound mind or may be affected with tuberculosis, syphilis or some other transmissible disease.

That nine of these twenty-seven states do not even provide for the annulment of the marriage relationship, or a divorce, where the parties have contracted the relationship when either one or both of the contracting parties are mentally unsound.

That only six of the forty-eight states prohibit the intermarriage of persons affected with a transmissible disease, which is to say that forty-two of the commonwealths of these United States are now issuing annually more than half a million permits to tuberculars and syphilitics alone to found American homes wherein will be born about two million innocent children to a favorable environment of the Great White Plague and the possible heritage of the Great Social Evil.

That only two states require a physician's certificate that neither party is affected with a transmissible disease.

That only *one* state (Wisconsin) has required a thorough examination based on recognized clinical and laboratory tests and is applicable to men only and only for physical defects.

That only one state penalizes by imprisonment for intermarriage between epileptics, imbeciles and those of unsound mind.

A summary of the laws passed by the various states for racial betterment indicates that the public conscience is being aroused and reflects

the appalling and complex state of human society as it exists in these United States in this twentieth century. How complex it is, is indicated in some degree by the vast number of ineffective laws that have been passed by some of our commonwealths and the absence of any statutory protest in other states. But the absence of such a law from the statute of any state does not of necessity indicate an indifference of society to the need of such law, but a silent protest of its legislative body against putting upon the statute a law which its executive body cannot efficiently enforce because of the complexity of society and the rules which govern it.

The rules governing society apply generally to all people alike. They tacitly assume that all people are alike, while admitting that there are some who are different and who constitute special classes that must be specially provided for and from which society must be protected. But the difficulty in legislating for the purpose of racial betterment is obvious when we attempt to separate these special classes from the masses. Although well defined at one extreme, at the other they merge with the mass of the population. So it is seen that the individuals constituting these special classes are not in all respects distinct, but rather that they are more or less peculiar in one or more respects. In fact the special classes which are the concern of the Boards and Associations of Charity and Correction consists of individuals with one or more traits that are more or less disturbing to our social organization. These individuals, or rather, their traits, cause a disturbance and an expense of time and money quite out of proportion to their number in the community. They seem to be the main hindrance to our social progress; moreover their number seems to be increasing, hence it is the pressing need of the day to find out the cause and the cure of defectiveness and delinquency.

The diversity of answers to such inquiry shows the depth of our helplessness. Mental defectiveness is ascribed to malnutrition of the fetus, to asphyxiation of the child during labor at birth, to adenoids, to infection with venereal disease, head injuries and many other direct and individual causes too numerous to mention, despite the fact that (excepting Mongolian idiocy) it is usually only in families with the defect on both sides of the house. Likewise criminality is

ascribed to poverty, to bad example, to bad or inadequate education, despite the fact of incorrigibility. Wherever there is some relation between the alleged cause and the result, one feels that these explanations are based on the logical error, *post hoc ergo propter hoc*, and that the cart is often put before the horse. The very multiplicity of explanations shows their inadequacy. There is a more fundamental explanation for these non-social traits than any of those that are usually ascribed.

First of all we can see clearly that the traits that cause so much trouble are "unfortunate" or "bad" only in relation to our society, i. e., relatively, not absolutely. Lack of speech, inability to care for the person or to respond in the conventional fashion to the calls of nature, failure to learn the art of dressing and undressing, inability to count, entire lack of ambition beyond getting a meal, abject slothfulness, love of sitting by the hour picking at a piece of cloth, these are unfortunate mental traits for a twentieth century citizen but they constitute a first-rate mental equipment for our remote ape-like ancestors, nor do we pity infants who invariably have them. So likewise with crimes: the acts of taking and keeping loose articles, of tearing away obstructions to get at something desired, of picking valuables out of holes and pockets, of assaulting a neighbor who has caused pain or who is in the way, of deserting family and other relatives, of promiscuous sexual relations, these are crimes for a twentieth century citizen, but they were the normal acts and customs of our remote ancestors, and excepting the last, they are so common with infants that we laugh when they do such things. In a word the traits of the feeble-minded and the criminalistic individual are alike normal traits for infants of today and adults in the earlier stages of man's evolution. There is an aphorism that biologists use which is apt here: ontogeny recapitulates phylogeny, which means that the individual in its development passes through the stages like those the race has traversed in its evolution. The infant represents the ape-like stage.

Just as certain individuals show ancestral or rudimentary organs that most of us have lost, such as a heavy coat of hair, an elongated coccyx, an unusually large appendix, a third set of teeth, accessory mammae—so some adult person retain certain ancestral mental traits that the

rest of us have got rid of. And just as the heavy coat of body hair can be traced back generation after generation until we cannot avoid the conclusion that these hairy people represent a human strain that has never gained the naked skin of most people, so imbecility and criminalistic tendency can be traced back to the darkness of remote generations in a way that forces us to conclude that these traits have come to us directly from our animal ancestry and have never been purged from our blood.

The question as to how these traits ever came to be so rare in mankind is one concerning the question of human evolution and on this subject there is no historical evidence but Dr. Richard Maurice Bucke in his very remarkable book, "Cosmic Consciousness," undoubtedly gives the ablest account of the evolution of the intellect so far written. He tells us that in the beginning the Creator did not make man with a twentieth century intellect. He did make him with an intellect capable of growth, of expansion, of evolving into something higher. He did that which brought into existence the great drama of humanity with the whole earth as the stage and the time a million centuries.

He tells us in a way hard to disbelieve that there are four stages of intellectual development; the first is when sensation is experienced (the lowest form of life having no perceptible sensation). For ages after sensation, the senses are developed, impressions are made upon the mind by the thousands. Finally new impressions are formed from the old ones as well as from the outside world. Thousands of these old impressions form a new image, and for aeons of ages this development goes on until what is known as simple consciousness is fully developed. This is the consciousness of the higher order of animals, the horse, the dog, etc. To be brief, simple consciousness is that degree of intellect which recognizes objects but does not know that it recognizes them, cannot think of itself as separate and apart—as conscious.

Finally one of these creatures whose simple consciousness is highly developed has some unusual impression made upon its sensorium. It experiences consciousness of itself. As a natural growth the Creator breathes into its nostrils the breath of life and it becomes a living soul, a thinking man. Then language is born, com-

munication is established with some other leading individual of this more highly developed species. An occasional one hears of the new experience, which is called self-consciousness, which is the faculty by which we realize. In ten thousand generations, perhaps millions, it became common, universal, with the human species, until today the chasm between self-consciousness and simple consciousness is the chasm between the human and the brute.

The next step in the evolution of the intellect is through self-consciousness to what Bucke calls "Cosmic Consciousness," and the chasm is as great as that between self-consciousness and simple consciousness but the development much more rapid. Bucke takes the position that while it required perhaps a million years or more likely millions of years for simple consciousness to evolve into self-consciousness, it is quite certain that self-consciousness has existed only about three hundred thousand years, and that we are now on the verge of experiencing Cosmic Consciousness, which is a much higher development, a spiritual attainment, so far reaching, so beautiful and so in harmony with the Divine Consciousness as not to be comprehensible by man in his present state of self-consciousness unless he has ascended close to the summit of self-conscious progress. That Moses, Gautama, Mohammed, Gideon, Isaiah, Paul and many others experienced Cosmic Consciousness during the last few thousand years is quite certain, and that more have experienced it during the last five hundred years than during the three or four thousand years previous, and that Jesus reached the very summit of Cosmic Consciousness.

Let it be hoped that in years to come this high spiritual life may be realized. It is not the mission of this paper to enter into Cosmic Consciousness, however, but the Cosmic Conscious race will not be the race which exists today any more than the present race of humanity is the same race which existed prior to the evolution of self-consciousness. The simple truth is that there has lived on the earth, appearing at intervals for thousands of years among ordinary men, the first faint beginnings of another race; walking the earth and breathing the air with us, but at the same time walking another earth and breathing another air, of which we know little or nothing, but which is all

the same our spiritual life, as its absence would be our spiritual death. The new race is in the act of being born from us and in the near future it will occupy and possess the earth.

This is the civilization that we should strive to attain. This is the standard that all should hold in sacred memory who are interested in racial betterment.

Now, it is clear that after these new traits of self-consciousness became established and formed a basis for the new society those persons who possessed the old traits of simple consciousness stood a good chance of being exterminated, and many a defective line was ended by their death. We are horrified by two hundred and twenty-three capital offenses in England less than a century ago, but though capital punishment is a crude method of grappling with the difficulty of race betterment, it is infinitely superior to that of training the feeble-minded and criminalistic and then letting them loose upon society and permitting them to perpetuate in their offspring these animal traits.

Our present practices are said to be dictated by emotion untempered by reason; if this is so, then emotion untempered by reason is social suicide. If we are to build up in America a society worthy of the species *Man* then we must take such steps as will prevent the increase or even the perpetuation of animalistic strains showing mental defectiveness. Nor are the individuals showing mental defectiveness the only drawbacks to our social uplift. There is a more vast and greater army of defectives possessing stigmata of physical degeneracy whose protoplasm seems incapable of withstanding the ravages of disease, and conditions incident to civilization, and who exist only as proteges to the art and science of Medicine and Surgery. They are parasites to our social body and burdens to our social uplift, many of which succumb annually to the white plague and the great social evil, but not before inoculating our whole social fabric with non-disease-resisting spawns to perpetuate their species. It is true that many individuals from such strains may acquire a relative immunity from tuberculosis and syphilis and gain the ascendancy over their mother strain just as civilized man has gained over the aboriginal races. For it is said that as we become civilized we become syphilized, and that ninety-

eight per cent of all individuals who have attained adult life have at that time or at some future time sustained a tubercular infection. This may be true or it may not, as *bonafide* evidence is lacking, but the parable of the sower as cited by Dr. William Osler and made applicable to the tolerance and resistance of tuberculosis by the protoplasm of civilized man is explicative just here. "Some seeds fell by the way-side and the fowls of the air came and devoured them up." These are the bacilli scattered broadcast outside the body, and an immense majority of which die. "Some fell upon stony places." These are bacilli that find lodgment in many of us perhaps with the production of small foci, but nothing comes of it; they wither away because the protoplasm possesses the natural immunity inherent in that particular strain. "Some fell among the thorns and thistles, and the thorns sprang up and choked them." This represents the cases of tuberculosis latent or active in which the seeds find the soil suitable and grow, but the conditions are not favorable, as thorns representing the protecting forces of the body got the better in the struggle and an acquired immunity results. "But others fell on good ground and sprang up and bear fruit an hundred fold." These are the one hundred and fifty thousand who die annually in the United States alone with an economic annual loss to society of over two hundred million dollars; these are recruited each year from the strains of our race whose protoplasm has never acquired immunity, relative or absolute, from the scourge of the Captain of the Men of Death. In this country the Irish and the Negro are most frequently diseased. The American Indian is very susceptible to the disease when brought under the restrictions of civilization and he has justly learned to dread the coughing white man, and they die in large numbers of consumption, when exposed to the influences of civilized society, while infection among the Jews is particularly infrequent as regards tuberculosis, and the same may be said of syphilis.

Racial immunity and susceptibility to certain diseases is an established fact, and no less is it the case of certain strains or families of the same race, as any physician doing a family practice must soon take cognizance. I recall at this particular time of taking the family record of

an applicant for insurance which revealed the fact that out of seven deaths, five occurred from pneumonia, and again, in a family of bleeders, four deaths occurred from hemorrhage following trivial wounds or injuries.

I have treated a family composed of three generations for chronic Bright's disease with cardio-vascular complications; the grandmother suffered an apoplectic stroke, the mother died at the age of fifty-six from uremic coma after suffering for more than a year from constant headache with a blood pressure of two hundred and forty, while the son, now twenty-six years old, is the picture of health, possessing a physique to be envied by any one, is suffering with an intermittent albuminuria, and has frequent attacks of headaches and a blood pressure of one hundred and sixty. That these and many other diseases such as Friedreich's ataxia, Huntington's chorea and even *tabes dorsalis*, *paralysis agitans*, multiple sclerosis, muscular atrophy, gout, rheumatism and rheumatic diathesis, diabetes, arteriosclerosis, cretinism, exophthalmic goiter, cancer and cleft-palate frequently present family groups, which cannot be interpreted in any other light than that of hereditary tendencies, or at least atavistic defects of the family protoplasm.

These and many other family characteristics common to all or most individuals derived from that strain, may be sighted if further evidence were needed to strengthen the argument of heredity and atavistic tendencies.

When we look among our acquaintances we are struck by their diversity of physical, mental and moral traits. Some of them have black hair, others brown, flaxen, yellow or red; their eyes may be either blue, green, brown or black, their hair straight or curly; nose long, short, narrow or broad, straight, aquiline or pugged. They may be liable to colds or resistant; with weak digestion or strong. The hearing may be quick or dull, sight keen or poor, mathematical ability great or small, the disposition may be cheerful or melancholic; they may be selfish or altruistic, conscientious or liable to shirk.

It is just the fact of diversity of characteristics of people that gives the bases for the belief of the practicability of improving the qualities of the "Human Harvest." For these character-

istics are unmistakably inheritable; they are independent of each other and they may be combined in any desirable mosaic.

The method of inheritance of these characteristics are not always so simple as might be anticipated. Extensive study of heredity has of late years led to more precise knowledge of the facts. The element of inheritance is not the individual as a whole, nor even, in many cases, the traits as they are commonly recognized, but, on the contrary, certain unit characters. What are indeed units in inheritance, and what are complexes, is not always easy to determine, and it can be determined only by the result of breeding. To get at the facts it is necessary to study the progeny of human marriages. Now marriage can be looked at from many points of view. In novels, as the climax of human courtship; in law, largely as the union of two lines of property descent; in society, as fixing a certain status, but in eugenics, which considers its biological aspect, marriage is an experiment in breeding, and the children, in their varied combinations of character, give the result of the experiment. That marriage should still be an experiment in breeding while the breeding of many animals and plants has been reduced to a science, is ground for reproach. Surely the human product is superior to that of poultry; as we may now predict with precision the character of the offspring of a particular pair of pedigreed poultry, so it may sometimes be with men; as we now know how to make almost any desired combination of the characters of guinea-pigs, chickens, wheat, corn, cotton, horses, hogs or cattle, so we hope to do with man.

The manner in which this is to be accomplished belongs to the realm of eugenics in which all people are, or should be, deeply interested; but the results as they are and should not be, hangs like a pall over the medical profession and shuts out, as it were, the star of hope needed to guide and lead us on to a greater endeavor for a higher reward than this world can offer.

The human babies born each year constitute the world's most valuable crop. Taking the population of the world to be one and one-half billion, probably about fifty million children are born each year. In continental

United States, with over one hundred million souls probably three million children are born annually. When we think of the influence of a single man in this country, of an Edison, a Burbank, a Harriman or of William James or Horace Mann, the potentiality of these three million annually can be clearly conceived to be beyond computation.

But for better or worse this potentiality is far from being realized. Over a half-million of these infants die before they attain the age of one year, and a third of all are dead before they reach their twentieth year;—before they have had much chance to affect the world one way or the other. However, with one and one-half million born in the United States destined to play an important part for the nation and humanity, we could look with equanimity on the results. But, alas, only a small part of this ever will be fully effective in rendering productive over three million square miles of territory, in otherwise utilizing the unparalleled natural resources of the country and in forming a united altruistic, God-serving, law-abiding, effective and productive nation, leading the remaining 93 per cent. of the globe's population to higher ideals. On the contrary, of twelve hundred thousand who reach maturity each year, forty thousand will be ineffective through temporary ailments, eight to ten thousand will be segregated in the care of institutions, unknown thousands will be kept in poverty through physical and mental deficiency, other thousands will be the cause of social disorder and still other thousands will be required to tend and control the weak and unruly.

It is reproach to our intelligence that we as a people proud in other respects of our control of nature, should have to support over half a million insane, feeble-minded, epileptics, blind and deaf, eighty thousand prisoners and over a hundred thousand paupers at a cost of more than a hundred million dollars per year. A new plague that would render four per cent. of our population not merely incompetent but as a burden costing society over a million dollars annually would instantly attract universal attention. But we have become so used to criminality, disease and degeneracy that we accept them as necessary evils. That they are so in the world's ignorance is granted; that they must remain so is denied.

ANDREW VESALIUS,
FOUNDER OF MODERN ANATOMY.*

CHAS. B. JOHNSON, M. D.,
CHAMPAIGN, ILL.

For convenience of study the history of anatomy may be divided into three periods, as follows: Ancient anatomy, beginning in the time of Alexander the Great and ending sometime after Galen, who lived in the second century of the Christian era; Medieval anatomy, which was coincident with the Middle, or Dark Ages of general history; and Modern anatomy, which had its inception in the sixteenth century and reaches to our time.

Andrew, or Andreas, Vesalius was the founder of modern anatomy just as truly as was Columbus the discoverer of America. Vesalius was a Belgian and was born in the city of Brussels on the last day of the year 1514. On his father's side he came from a long line of distinguished medical men, among whom were famous teachers, accomplished scholars and eminent practitioners. On his mother's side his greatest asset was his mother herself, who was of German descent and whose maiden name was Isabelle Crabbe.

When young Andrew was born his mother had the caul and placenta carefully preserved in the belief then prevalent that these appendages thus cared for would have a beneficial influence on the subsequent career of the newly born.

From the first this noble mother was impressed with the idea that her son was destined to attain to something far above the ordinary; and that she might in some measure contribute to this she took pains to carefully collect and religiously care for the books, manuscripts and writings of his distinguished medical ancestors. For let it be known that the medical ancestry of Vesalius in an unbroken line extended back to his great-great-grandfather. Fortunately this devoted mother lived to see her son come in to what she conceived to be his own when he became a great anatomist, a gifted teacher, an able practitioner and an eminent author.

While yet very young Vesalius was sent to the University of Louvain, which was not far from his native Brussels, and where he soon became so proficient in languages that he could read

*Read before the Champaign County Medical Society January 11, 1917.

Latin and Greek like his mother tongue, and, furthermore, he obtained a good working knowledge of Hebrew and Arabic.

As a small boy he is said to have indicated what would be his future career by embracing every opportunity to dissect mice, rats and other small representatives of the animal world. Having made up his mind to study medicine young Vesalius entered the University of Paris, whose medical department was regarded as one of the best in Europe. This, notwithstanding the fact that medicine was taught in the University of Louvain, and that Louvain, even in that day, more than four hundred years ago, was a renowned institution of learning.

When Andrew Vesalius entered the University of Paris, Jacobus Sylvius was professor of anatomy, and as such was the most popular teacher of his time. The Fissure of Sylvius, Aqueduct of Sylvius and several other anatomical names have served to perpetuate his name to our time.

Here it may not be amiss to very briefly narrate the history of anatomy previous to the time of Vesalius, of whom it may be said that he found that branch of medicine little better than a sort of medical hodge-podge and left it a science. Hippocrates, the Father of Medicine, with all his knowledge and acquirements, knew nothing, or next to nothing of human anatomy. Hippocrates was a Greek and among that people anything short of cremation or prompt burial was regarded as desecration, indeed, failure to make prompt and proper disposition of the dead was a punishable offense.

Alexander the Great, conqueror of the known world, came on the stage about twenty-two centuries ago. When a youth Alexander had the good fortune to have for his teacher Aristotle, the great philosopher, who was the son of a famous physician, and who, furthermore, studied medicine himself and practiced that art to an extent. Indeed, substantially all the great philosophers of antiquity were learned in medicine and not a few of them practitioners. Aristotle was the possessor of one of the most gigantic intellects of all time. He was one of the first, if not *the first* naturalist, and was, moreover, the father of comparative anatomy.

As the teacher of Alexander, Aristotle succeeded in implanting in the mind of the great conqueror a regard for learning and an interest

in all else that would contribute to the attainment of knowledge. Later as the world's treasures of one kind and another came to be at the disposal of Alexander, he spared no pains to further this attainment along educational lines, and it is said that with this end in view he had men in practically every accessible country, collecting animals, plants and other objects pertaining to nature, all for the use of his old teacher, Aristotle.

As you all know, Alexander founded a great city in Egypt on the southeast shores of the Mediterranean Sea, to which was given the name Alexandria. Here was located a great museum, which was in reality a school, or more correctly a university. The library of this institution eventually contained nearly three-quarters of a million books and manuscripts. Unfortunately Alexander died before his plans along educational lines were fully carried out, but fortunately for mankind his successors and kinsmen, the Ptolemies, continued the good work, and in due time Alexandria became the educational, as tonitis. The mesocolon may be congested and it already was, the commercial center of the world. Along with its other advantages Alexandria had the best medical school in existence, and in this anatomy was taught from the cadaver. Indeed, the art of dissection, much as we have it today, originated then and there; and was not only countenanced and encouraged by the Ptolemies, but was even practiced by more than one of these monarchs, who personally wielded the scalpel.

The Alexandrian school of medicine produced two famous teachers, namely, Herophilus and Erasistratus, who are entitled to be known as the fathers of the art of dissection. The bodies of executed criminals were turned over to these men for anatomical purposes. Indeed, it is even said that those condemned to death were, before execution, not unfrequently put in the hands of these anatomists for vivisection experiments; hence Herophilus and Erasistratus were pioneer vivisectionists no less than pioneer dissectionists. Under these circumstances it is easy to conceive that these famous teachers were in an almost ideal position to do original work; and some of the body-functions these scientists of twenty-odd centuries ago doubtless had the rare privilege of witnessing while the tortured victim yet breathed and his heart still throbbed. Indeed,

it is not hard for us to conceive that they even viewed the partially exposed heart, itself, in action.

The name of Herophilis has been handed down to us in the term Torcular Herophilis, applied to a cerebral sinus. In addition to his scientific attainments Erasistratus was a most successful practitioner and was patronized by the nobility and members of the royal families. In that period every little square of ground was a kingdom and kings were about as thick as Kentucky colonels are today south of the Ohio River.

The king of Syria consulted Erasistratus for a seemingly obscure trouble with which his son, a young man, was affected and that had baffled all the court physicians. After examining the patient Erasistratus arrived at what he conceived to be the true nature of the affection, but, that there might be no mistake in the diagnosis, he resorted to a very unusual expedient. This was nothing less than to have all the women of the palace pass leisurely in front of the patient while meantime, results were carefully noted. A number of women appeared, stopped a moment in front of the patient, who retained his composure till his step-mother came on the scene; then his bosom heaved, his face flushed and his eyes dropped.

The king of Syria, an elderly man, had taken for his second wife a young and beautiful woman and Erasistratus brought out the fact that the patient, a handsome young man, was madly in love with his step-mother; and believing his case hopeless the victim for some time had not partaken of food with the intent of starving himself to death. All these facts Erasistratus brought out in a confession he secured from the patient. In those days marriage knots were loosely tied and hence easily undone, and when the king learned the truth, he promptly surrendered his young wife to his son; and once more in human history two souls were made happy and two hearts were caused to beat as one. Furthermore, what had seemed an obscure and serious medical case was diagnosed and cured.

From the scientific side Erasistratus gave names to the right and left auricles of the heart. He was also the first to devise and use a catheter for drawing urine from the bladder.

In the next century after Herophilis and Erasistratus, the Romans conquered Alexandria and

forthwith a ban was put on human dissection. Some one has aptly said that no one could go further in torturing a man than a Roman, or had less sympathy for suffering, but the moment the victim ceased to breathe his dead body became sacred and to in any way mar its integrity was an act of desecration, that under no circumstances could be tolerated.

Claudius Galen, next to Hippocrates the greatest medical man of antiquity, flourished in the second century after Christ; and although he wrote extensively on anatomical subjects, was, nevertheless, compelled to get his first knowledge from the dissection of animals. He was, however, fortunate in securing for this purpose monkeys, which more than any other representative of the animal kingdom, approximate the human form in structure. As illustrative of the next to impossibility of properly studying anatomy in Galen's time is the fact that he recommended his students to go to Alexandria, in whose medical school was a human skeleton. But notwithstanding Galen's lack of opportunity to study anatomy properly, he not only wrote on that subject, but wrote so extensively and so impressively that he became and remained an anatomical authority for thirteen centuries.

As we have already seen, the dominance of the known world by imperial Rome, which dated from about two centuries before the Christian Era, had the effect to do away with human dissection. Three hundred years after Christ, Constantine, a great Roman emperor, became a convert to Christianity, and for twelve hundred years thereafter the Christian church frowned on dissection of the human body. This period when the church put a ban on the proper study of anatomy corresponds to what is known in history as the dark, or middle ages. However, in this period the monks did a great service for the medical profession by copying the works of Hippocrates, Galen, Razes and other noted medical writers along with all the other classics. Toward the close of the middle ages the ban on dissections was raised to a degree that permitted each of the great universities to have annually one subject for anatomical purposes. In 1314, Mondino, a teacher in the medical department of the university of Bologna, created a profound sensation by publicly dissecting the body of a human female. Further than this, he somehow managed to se-

cure other cadavers and finally published a small manual of anatomy which speedily came to be, and for two centuries remained, a sort of standard. But notwithstanding the exceptional advantages Mondino had his work both as regards text and illustrations was extremely crude. One evidence of its crudeness was shown in the fact that he divided the body into three cavities as follows: The upper, which contained what was termed the animal members; the middle, the spiritual, and the lower the natural members. But despite the development of more liberal notions in high places a strong popular prejudice against dissection prevailed up to the earlier years of the sixteenth century.

We left young Vesalius just entering the medical department of Paris, where, as we saw, he was to get his anatomy from Jacobus Sylvius, by far the most popular lecturer in the great institution of learning with which he was connected and whose classes in anatomy sometimes numbered as many as five hundred. He was conceded to be the ablest anatomist of his generation, but nevertheless most of his demonstrations were made on the carcasses of animals, and he was wont to deliver his lectures while seated on a chair that rested on a raised platform, where he read from a manuscript that contained long quotations from Galen, who flourished thirteen centuries before, and whose anatomical descriptions were in the eyes of the lecturer next to infallible. So infallible indeed, from his viewpoint, that nature might be in error; God All-Mighty might make mistakes, but Galen, never. On the rare occasions when a human cadaver was obtained and the dissection of this showed parts different from Galen's descriptions, Sylvius was wont to insist that since Galen's time nature had brought about a change in these structures for that great authority could not possibly have gone wrong. By the side of Sylvius stood a man with a long pointed stick who endeavored to point out what the speaker was attempting to describe, and which an ignorant barber was blunderingly dissecting with a razor.

Such was the method of teaching anatomy, adopted by Jacobus Sylvius, who, as elsewhere stated, was the most popular teacher of his generation. He was, furthermore, thrifty, and no student was permitted to attend his lectures who had not paid his fees to the last penny. Indeed,

Sylvius was so close that in cold weather he was want to hop, skip and jump about his room in an endeavor to warm himself without incurring the expense of buying fuel.

On the rare occasions when a cadaver was put at the service of the lecturer, very much that otherwise might have been obtained for demonstration was lost by reason of the blunders of an ignorant barber who always acted as prosector. For the purpose of obtaining anatomical material Vesalius and his fellow students sometimes visited cemeteries and, for the time being, became "resurrectionists," as those who did this kind of work were called in the writer's student days. In the outskirts of the city was a place where criminals were executed and their bodies left in the open to decay or be eaten by dogs, vultures and other flesh eating animals and birds, and here young Vesalius not infrequently went for the purpose of securing bones for examination and study.

One noted robber was sentenced to death and his executioners in an effort to make his last hours in some degree commensurate with the many crimes he had committed, hit upon the scheme of chaining him to the top of a high iron post and kindling beneath him a slow burning fire. In the end the robber's carcass was baked to a turn and later it became a rare treat for vultures, eagles, hawks, crows and other rapacious birds; and that these scavengers of the air picked the robber's bones clean, goes without saying. However, all the ligaments and some of the articulating cartilages were left in place. Thus, thanks to a slow fire and ravenous birds, was produced a skeleton articulated at every joint, articulated not with common every day wire, but with the same ligaments and cartilage that had long seen service in the robber's many crimes and guilty escapades. Meantime what was happening to the carcass of the dead robber did not escape the watchful eye of young Vesalius, and in due course, aided by fellow students and under cover of night time, the iron post was ascended, the chain detached and the skeleton most fortunately secured. This was the first articulated skeleton of which Vesalius became possessed, but of individual bones he had not a few; and with these he had become so familiar that blindfolded, it was said he could identify any bone in the body.

In prosecuting his anatomical studies Vesalius became a positive enthusiast and as such seemed to be utterly oblivious to the many unpleasant things that necessarily accompany the work of a practical anatomist; hence he not infrequently had in his room sundry anatomical specimens in various stages of decomposition; for it was long before the day of antiseptics and preservative fluids, but fortunately for his personal comfort, malodors and vile smells did not disturb him in the least.

Meanwhile so well versed had he become in all that pertained to anatomy that his fellow students and teachers alike came to have much pride in his exceptional acquirements; and finally he was given opportunity to show what he could do when a human cadaver was put in his hands to dissect and demonstrate before a large audience.

There are other matters of interest connected with the student life of Vesalius that will have to be passed by for want of time, consequently all that need be said is that as time went by he became more and more proficient and his fame extended and was carried, among other places, back to his Alma Mater, the renowned University of Louvain, which in consequence honored him with an invitation to make a public demonstration and dissection before the students and faculty of that institution of learning.

Finally Vesalius began to travel, and among other places visited Italy, then, in many particulars, the most advanced country in Europe, especially from the educational side. Italy had taken the lead in the renaissance movement, or in other words, the transition from the middle ages to modern times, and to that country had come scholars, teachers, writers, and great leaders in thought and advancement. Furthermore, this was the golden age of Italian art—the age of Raphael, Leonardo, Michael Angelo, Titian and other great painters, sculptors and architects.

Vesalius was especially pleased with Venice, where he found a congenial atmosphere and where he remained for a considerable period for the good and sufficient reason that he could have a free hand in his anatomical studies. Finally his reputation as an anatomist of unrivaled attainments was emphasized when the great University of Padua, in Italy, appointed him to the chair of anatomy that was created for this pur-

pose, and which, by the way, was the first anatomical chair in the history of medicine.

From the very beginning of his teaching Vesalius was an innovator, and among other radical innovations did away with both the stupid demonstrator and awkward barber-prosector—the first with his pointed stick and the other with his blundering razor. In a word Vesalius promptly became his own prosector and his own demonstrator. His instruments were few and simple. Scalpels of several sizes, hooks, cannula, sounds, bristles, hammer, saw, needles, thread and sponges. Scissors he seldom used and forceps never. Much of the separation of tissues and structures he accomplished by the deft use of his finger nails. That he was a dextrous prosector and that all his work was extremely neat, goes without saying.

From the inception of the anatomical lectures of Vesalius at Padua, they became and remained immensely popular; so popular indeed, that a special building, called an Aula, had to be erected to accommodate the crowds that flocked to see and hear. In addition to students these lectures and demonstrations were attended by university instructors, city officials, prelates, priests, professional men, dignitaries of one kind and another, and prominent laymen. The seating capacity of the Aula was five hundred and it never failed to be crowded. At one end of the building was a strong table by the side of which hung a skeleton and beneath which was an assortment of bones.

Promptly at the hour designated Vesalius, who was but twenty-two years of age, would take his place at one end of the table and perhaps begin his lecture by demonstrating the simpler things such as the various tissues and structures on the carcasses of animals; after which a human cadaver would be brought in and placed on the table, when every eye became agape and every ear alert that no demonstration might be lost, and no word unheard.

Substantially all the anatomical material was obtained by robbing graves of their occupants and, as elsewhere noted, antiseptics and preservative fluids were unknown. Vesalius, as far as practicable, gave his anatomical lectures in the colder months, and these were continued day-in-and-day-out till the last cadaver was utilized. I said the *last* cadaver, unfortunately the first

cadaver was too often, likewise, the last, by reason of the many barriers thrown around and about the procuring of needed anatomical material. In some fortunate seasons Vesalius was able to have two subjects for demonstration; and in some yet more fortunate, even three. But so unusual was this last experience that the date when a third subject was put on the table, the young anatomist no doubt looked upon as a real red-letter day in his work.

When Vesalius was called upon to fill the anatomical chair at the University of Padua, he was but twenty-two years of age, yet young as he was, his lectures and demonstrations were vastly more popular and attracted more attention than anything else about that famous seat of learning.

In due time after assuming his duties at Padua, Vesalius prepared and published a set of anatomical plates in the form of loose leaves. Of these another has said, "The large size of the plates, their fidelity to nature, and the skill with which they were cut in wood, were features which showed to the world that a real master in anatomy had been born." The drawings and engraving were executed by Van Calcar, a fellow-student of Vesalius, and a student of the famous artist, Titian.

After publishing his anatomical plates, Vesalius began the preparation of a work that was destined to be epoch-making; the Latin title of which was "*De Fabricis Humanis Corporis*," or in plain English, "The Structure of the Human Body." But in a little time the work came to be known in all quarters as the *Fabrica*.

The *Fabrica* was given to the world in 1543 and was conceded to be a superb production. The text was clear, the illustrations very fine and the typography beautiful. The art of printing, although at that time only about a hundred years old, was nevertheless so far advanced that able, capable men came to be enthusiastic devotees of the new craft. Such a one was Joannes Oporinus, who printed the *Fabrica*, and who was professor of the Greek language at the University of Basel. Its illustrator was Van Calcar, before referred to as the pupil of the great Italian artist, Titian. It is perhaps not too much to say that the *Fabrica* was one of the most attractive medical books ever published. Perhaps the fact that this work was issued from the press during the Golden Age of Italian Art

had much to do with its exceptional attractiveness.

While in Basel attending the publication of the *Fabrica* Vesalius dissected a subject before the faculty of the University of that city and presented its skeleton to that institution, where part of it exists today, and is thought to be the oldest anatomical preparation in existence. As a faithful presentation of the most advanced anatomical science of its day and a superb picturing of form and structure the *Fabrica* was conceded in all quarters to be without a rival. I said in all quarters, this needs qualification for among a few in the profession, the *Fabrica* was severely criticised; and of the critics Jacobus Sylvius, the old teacher of Vesalius at Paris, was nothing less than violent. In season and out of season he spared no pains and let no opportunity go by to castigate and vent his spleen upon one who had had the temerity to call in question the absolute infallibility of Galen. But worse yet some of the pupils of Vesalius became his harsh critics.

Disgusted at all this, Vesalius accepted an offer from Emperor Charles the Fifth to become his archiater, or court physician. For be it known that in addition to being a great anatomist Vesalius was a skillful surgeon and an exceptionally successful practitioner of medicine. We can little wonder when all things are considered that Vesalius accepted the tempting offer of Charles the Fifth, who ruled over half of Europe, both Americas, and much more besides. Indeed, Charles the Fifth was the monarch of a larger land area than any ruler before or since his time. This great emperor appreciated the exceptional attainments of Vesalius and let no opportunity go by to show him favors.

Some years later Charles the Fifth resigned in favor of his son, who is known in history as Philip the Second of Spain; and while the new monarch was in no sense the equal of his renowned father, he ever remained a true friend to Vesalius. At that period Spain was mistress of the world and here Vesalius made his home for the most part, but there was next to no opportunity for studying practical anatomy. So little, indeed, that he said that he could not so much as lay his hand on a dried skull, much less have the chance of making a dissection.

Don Carlos, the son of Philip Second, suffered from a severe injury of the head which the

Madrid physicians failed to relieve. Finally Vesalius was called to see the patient and under his care a cure was promptly brought about. Some time before Vesalius had cured the Emperor Charles of a serious infirmity. These and other professional achievements caused the profession of Madrid to look upon the successful court physician with anything but kindly eyes.

It was under these circumstances that Vesalius was called upon to treat a Spanish nobleman who was suffering from an obscure trouble that finally terminated fatally. Stirred with a desire to probe the nobleman's ailment to the bottom Vesalius asked for and was granted the privilege of making a post-mortem examination. In doing this current report had it that having it in mind to remove the breast bone the operator had but little more than made the first incision when it was noticed that the supposed dead man's heart was yet throbbing. To find himself the victim of circumstances such as these in the Spain of nearly four hundred years ago was to Vesalius anything but assuring. To make a long story short he was technically guilty of a crime that for its expiation might exact the life of its perpetrator.

One account has it that Vesalius was tried and condemned to execution and that his friend Philip the Second intervened and saved the life of the unfortunate physician by substituting a kind of penance which involved a trip to Palestine and a visit to the Holy Sepulcher. At all events Vesalius promptly took ship, visited Palestine and planted his feet beside the Holy Sepulcher.

While on this trip Vesalius received word that the chair of anatomy at the University of Padua had become vacant and it was desired that he come and occupy it. This offer came from no less a body than the Senate of Venice, and under these circumstances Vesalius resolved to return to his first love, namely, the study and teaching of anatomy. Carrying out this resolve, or rather with the intent to do so, Vesalius set sail for Venice, then the great commercial and educational center of the world. But, unfortunately for him and no less unfortunately for science, the ship in which he embarked encountered a terrible storm and was wrecked on the barren island of Zante, where the great Belgian anatomist died from starvation on October 15, 1564. That

Vesalius should meet his end at this time and in this manner seemed nothing less than the very irony of fate. For more than twenty years he had been a participant in all the luxuries that a wealthy court would supply and had meantime accumulated a large private fortune. Moreover, at the age of fifty years he was in his intellectual, no less than in his physical, prime. To the exceptional education, both classical and scientific, which as a young man, he had acquired, had been added more than twenty years contact with the many distinguished personages in and about the imperial court. With all this on the credit side we can well imagine Vesalius looking out on the future with confident anticipation a few short hours before death so unhappily overtook him.

As before noted, it was the fortune of Vesalius to live in the era of the renaissance, a time when the clouds that had obscured the sky during the dark ages, were rapidly passing and the bright sunlight of the modern era was breaking through and illuminating the path of the wayfarer.

At the time of his birth a quarter of a century had not elapsed since the discovery of America. In the century previous gunpowder came into general use with far reaching results. Likewise the art of printing was discovered, and in consequence the number of books enormously increased. As before noted it was the privilege of Vesalius to live in the golden age of Italian art, and among his cotemporaries were Raphael, Correggio, Leonardo De Vinci, Titian and Michael Angelo, the last a great universal genius who was architect, sculptor, painter and poet, all in one. Another of his cotemporaries was Copernicus, founder of modern astronomy. I wonder how many of my readers know that the great Copernicus was a physician? I confess that I did not know it till very recently when I stumbled on the fact. As the reader may recall Copernicus was a pronounced innovator in the astronomical field, and as such overturned the long accepted Ptolemaic theory that the earth was the center of the universe and about it the sun, moon, planets and stars all revolved. It is an interesting coincidence that Copernicus published his discoveries in a epoch-making book in 1543, the same year that Vesalius gave to the world his *Fabrica*, another great epoch-making work. In the midst of his work Copernicus was

stricken with disease but in the end had the satisfaction to send from the sick bed from which he was never destined to rise, an approved copy of the work that has made him immortal.

Still another cotemporary was the notorious Swiss physician Bombastus Paracelsus, who with not a little instinct of a quack embodied in his make-up certain characteristics that were of lasting benefit to medicine. He was an iconoclast among iconoclasts, and to show his contempt for authority publicly burned the works of Galen. He was a pioneer in medical chemistry and was the first to use a number of articles that speedily became and have ever since remained therapeutic standards. But the greatest medical cotemporary of Vesalius was Ambrose Parê, the renowned French surgeon, whose brain and heart alike, were far in advance of his time.

In a sense Vesalius lived in an anatomical age, and to even name the men who distinguished themselves in anatomy would be no little task. Let it suffice to refer to Eustachius, who first described the Eustachian tube, and for whom it was named. Fallopius, a pupil of Vesalius and a famous teacher whose lasting monument is the Fallopian tube, which he was the first to fully describe. Another famous anatomist of that period was Realdus Columbus, likewise a pupil of Vesalius. But greater than all these was Vesalius, whom some have not hesitated to name the world's greatest anatomist. This in spite of the fact that his great epoch-making work, the *Fabrica*, was given to the world when its author was but twenty-eight; and, furthermore, all his anatomical labors were completed before he had rounded out his thirtieth year.

In conclusion the words of Portal seem most fit:

"Vesalius appears to me one of the greatest men who ever lived. Let the astronomers boast their Copernicus; the natural philosophers their Galileo and Torricelli; the mathematicians their Pascal; and the geographers their Columbus, I shall always place Vesalius above all these heroes. The first study of man is man. Vesalius had this noble object in view, and had admirably attained it. He has made on himself and his fellows such discoveries as Columbus could make only by traveling to the extremity of the world. These discoveries are of direct importance to man. By acquiring fresh knowledge of his own structure, man seems to enlarge his existence; while dis-

coveries in geography and astronomy affect him but in a very indirect manner."

A FEW MINOR AILMENTS POTENTIALLY IMPORTANT.*

DAVID S. BOOTH, M. D.,

Professor of Nervous Diseases, Medical Department National University of Arts and Sciences; Neurologist to the Missouri Pacific-Iron Mountain and St. Louis South Western Railway Companies, etc.

ST. LOUIS, MO.

"Despise not small things, either for evil or good * * *.—A spark is a small thing, yet may kindle the world."

While reaching out for the great things in medicine, as in life, we should not neglect the little things; therefore, we wish to consider a few minor ailments or abnormalities which, trivial in themselves, often cause distressing symptoms, and occasionally far-reaching and even serious conditions. In brief, conditions actually trivial or benign, but potentially distressing or grave.

Some of these conditions are often not suggested to the examiner by the symptoms, and hence may be discovered only by routine examination, and even when apparent or discovered, are usually not considered of sufficient importance for serious consideration.

Some of these ailments or abnormalities may not be causing any symptoms; others cause symptoms reflexly by virtue of a general nervousness, which symptoms may perpetuate, or even aggravate, the nervous state, and in time may cause organic disease.

We need only remind you of the various *abnormalities of the eyes*, especially such as lead to "eye strain," which frequently in nervous individuals cause various symptoms, especially headache and vertigo, aggravate the general nervous state and which require correction by the oculist before general treatment can be permanently effective.

Chronically *diseased tonsils*, nasal *polypi* and *adenoids* are conditions which occasionally lead to general systemic diseases and may contribute to the causation of such nervous conditions as neurasthenia, epilepsy and chorea. Excision, of course, is here required before the depending condition can be successfully treated.

Elongated uvula is not infrequently the cause

*Read before the Southern Illinois Medical Society at Benton, Ill., Nov. 3, 1916.

of local irritation resulting in disease of throat, often producing such reflex symptoms as frequent clearing of the throat, dry cough, or feeling of suffocation and even asthma; occasionally these symptoms occur only when lying on the back.

We have observed an elongated uvula to greatly aggravate the cough in consumption, which may itself have resulted from the irritation of the uvula, and to be the sole cause of cough in valvular heart disease to which, quite naturally, the cough was attributed. We have also observed the cure of a cough which had been mistaken for consumption by a number of physicians over a period of seven years by amputating a greatly elongated uvula, and again have seen the complete relief of paroxysmal asthma of thirty years' duration by the same means. While prolonged local treatment may relieve the local throat abnormality, permanent relief is only assured by amputation of the uvula.

Diseases and malformations of the teeth may and do cause reflected pains and may be a factor at least in the causation of various nervous and mental states. In this it is not necessary that there be any local symptoms referred directly to the teeth. The most frequent of these abnormal conditions of the teeth are impaction and abscess, but these often cannot be detected except by a competent roentgenographer—one especially experienced in making x-ray photographs of the jaws. I have found these conditions as causative factors in facial neuralgia, but a warning is here necessary against the promiscuous pulling of teeth in this disease, as is often done.

Barclay¹ has called attention to the effects of dental irritation upon the throat, nose and ears, especially from numerous amalgam fillings and devitalized or "pulpless" teeth.

We need only refer to the menace to health caused by absent or decayed teeth.

When these conditions are discovered the correction lies with the dentist, who should have special experience along these lines.

Impacted cerumen in the external auditory canal may cause partial deafness of such slow onset as not to be recognized by the afflicted, and may cause "ringing in the ears," vertigo, feeling of fullness in the head or ears, nervousness and,

exceptionally, mental depression bordering on melancholia or a dry cough; the latter by virtue of the fact that a portion of the external auditory canal is supplied by a branch of the pneumogastric nerve. A piece of hardened wax so small as to be overlooked by the casual examiner, may press upon the ear-drum and cause "ringing of the ears," or a distressing vertigo. It requires no stretch of the imagination for one to understand how such symptoms could aggravate "nervousness" or even produce it in one of a nervous temperament.

Removal of hardened wax is usually easily accomplished by syringing with a weak solution of bicarbonate of soda in warm water after previously softening by dropping glycerine in the ear for several successive nights, or by the cautious use of hydrogen peroxide.

Warts and moles, though usually considered benign, not infrequently become cancerous in later life, are frequently present in persons of a nervous temperament and are common symptoms of more serious nervous diseases, notably acromegaly. When occurring on exposed parts such as the face and neck in the male, they are liable to infection by being cut in shaving, and in the female, by the reason of their disfigurement, often aggravate an existing nervousness through self-consciousness which occasionally leads to withdrawal from society and consequent morbidity, so that their removal becomes a necessity.

Though removal of these growths by the knife is reasonably safe, and the electric needle is effective, both are painful unless used under an anesthetic, and a scar usually results, so that I have used the solution of ethylate of soda, which is effective, painless and without appreciable scarring. Though this treatment was a heritage from my father who used it many years ago, I find it is seldom used. A drop or two of the drug should be applied with a glass rod, care being taken not to apply it to the healthy skin, which, however, may be protected by a coating of a bland ointment; nor must it be applied too liberally lest it attack the deeper layers of the skin beneath, although I have never had this occur. It is well to know its action can be stopped by the application of a little chloroform. The dark scab which forms should remain as long as possible to prevent a scar. If the growth has not entirely disappeared, another application should be made.

1. Robert Barclay, M. D., *Relation Between Diseases of the Teeth and Ears*; Dental Cosmos, May, 1894; also, *Dental Irritation as a Factor in Diseases of the Ear, Nose and Throat*, Dental Brief, April, May and June, 1900.

I have occasionally found this drug fails to "take hold" of a certain type of warts, and children often refuse to permit its application; under these conditions the warts may be successfully treated by moistening them night and morning with castor oil and preferably covering with oiled silk.

The editor of the *Surgical Clinic* claims (and we take his word for it) the following prescription not only "works every time," but "withers warts while you wait":

℞ Sulphur sub. 5 v
Acid acetic concent. 5 iiss
Glycerini 5 ii

Misce. Sig.—Apply the paste to the warts on small pieces of linen or spread with a brush at night, and wash off the next morning. Repeat until warts drop off.

Superfluous hair on the face is also usually a symptom of nervousness and by its psychic effect may be reflected adversely upon the neurasthenic or neuropathic.

It may be permanently removed by the electric needle, which, however, may have to be used a second time, is tedious, more or less painful, possibly some scarring and somewhat expensive, so that the patient may be given a prescription for barium sulphide, with instructions to mix it with an equal quantity of cornstarch and, after making a thin paste with water, apply it to the affected parts, and let remain from three to five minutes, with assurance that with ordinary care the application may be repeated as often as necessary to keep the face free of this annoying disfigurement. Caution and reasonably good judgment are necessary in this treatment, and it should be used upon retiring, as it reddens the skin for a few hours.

Flat feet or weak arches are a frequent source of discomfort, and may cause pain or aching of the feet, legs, thighs or back.

These are more common than generally believed, and often not discovered by the practitioner because he does not examine for it, or does not recognize that the arch need not be broken to cause considerable distress and even incapacity. So frequently is this condition the cause of pain and distress, that we would advise a search for fallen or weak arches in all cases of pain below the waist, where other cause cannot be definitely determined, and in all chronic

cases, since it may, at any rate, be a contributing cause.

Weak arch or "flat foot" is often the cause of the so-called "growing pains," or rheumatism, in children.

Many of these cases are treated for neurasthenia, rheumatism, malaria or sciatica, and I examined one case which the patient stated had been diagnosed by a neurologist as locomotor ataxia.

Edward H. Ochsner² gives the following as possible symptoms:

"In the milder cases the patient usually complains of sensation of fatigue, weakness and discomfort even on slight exertion, with a tired feeling, especially on the inner side of the foot or ankle, and a dull ache of the calf with or without pain in the knee, hip and lumbar region." Other symptoms occasionally found are coldness, numbness, cyanosis, increased perspiration of the feet and pain on the plaster surface of the heel and ball of the great toe.

A diagnostic sign³ is the outward deflection from the perpendicular of the lower end of the tendo Achilles, when weight is borne on the foot.

Frequently the now classic Volkman flat foot imprint will aid in making a diagnosis, though, as before stated, one may have a painful, weakened arch, so called "potential flat foot," without a broken arch and "flat foot."

Without considering the many possible causes of these conditions, it is evident that nervous debility is a fruitful predisposing cause which would in turn be perpetuated and aggravated by the distressing symptoms.

The cure of these conditions rightfully belongs to the orthopedic surgeon, since, as well said by Cooley,⁴ "but a small portion of static foot disturbances are traceable to arch disturbances *per se*," however, frequently they may be relieved by the use of arch supports, properly adjusted, which, however, requires judgment in the selection of the arches, and often much patience and persistence on the part of the patient. Perez B. Howard⁵ advises the use of air-bulb supports.

Ochsner⁶ finds that strapping the foot, ankle

2. Ochsner, E. H.: Saint Louis Clinique, 1907.

3. Helbing, Aus dem Gebieten der Ortho. Chir., March 27, 1905.

4. Cooley, Edward L.: Journal of the Missouri State Med Assoc., January, 1916.

5. Howard, P. B.: Boston Med. and Surg. Jour., Sept. 16, 1915.

6. Ochsner, E. H.: Loco citato.

and leg with adhesive strips affords relief and is often curative.

Proper exercise to develop the muscles may contribute to a cure, especially in children.*

Corns and bunions are not to be despised in our treatment of the nervous, and here the first essential is properly fitting shoes, and here, too, is where the practitioner often meets his "Waterloo," as scarcely anyone will admit his shoes are too small, ill-fitting or ill-shapen, and will proceed to prove (?) it by demonstrating how he can "wiggle his toes." Nevertheless, it is doubtful if corns and bunions ever occur with properly fitting shoes, and in case of corns, the shoes are usually too small, which cramps the toes, the dorsal surfaces of which rub the shoe.

Corns will usually disappear if the feet are soaked in warm water each night, well dried, and shoes properly fitted; they may be removed by painting night and morning for four or five days with a solution of salicylic acid in collodion.

Bunions are usually due to narrow or pointed shoes which deflect the toes, specially the great toes, toward the middle line of the foot. When inflamed they may often be relieved by frequently painting with a mixture of equal parts of tr. aconite, tr. iodine and ether, though occasionally only surgical measures are effective.

Many conditions of the *pelvic organs* give rise to reflex or reflected (deflected) pain, though I have not observed the female generative organs to be as frequent a cause as many writers would lead us to believe; however, some very distressing symptoms occasionally occur.

An intermittent sciatic neuralgia of several years' duration was completely and permanently relieved by the removal of a myomatous uterus. A peculiar, and for a time misleading, feature in this case was the complete relief from pain by a change from a sedentary, to an active outdoor life, such as horseback riding and mountain climbing.

The male generative organs, especially adherent or tight prepuce in nervous children, frequently cause reflex nervous symptoms, often necessitating circumcision, though I am convinced that in many, if not in most cases, the conditions may be fully met by dilatation of the prepuce if properly performed.

Certain conditions of the *colon and rectum*, in our experience, are frequently productive of

local or referred symptoms, and aggravate a general neurasthenic condition, which may have been the principal factor in their causation.

The more common affections of the rectum are fissures, ulcers, inflammation, stricture and hemorrhoids, and the disconcerting feature is that some of these may not cause any local symptoms. If so, the fact may be denied by the afflicted, which misleads the physician, unless no other cause being found for pain in the sacral region or in the region of the sciatic nerves, particularly if accompanied by constipation, which also may be denied, or auto-intoxication, the attendant insists upon a local examination of the rectum and so much of the colon as is possible to reach, which examination should be thorough and complete.

As stated, I have found rectal conditions which give no local evidence of their presence a frequent cause of referred and reflected pains, especially in the sacral region and in the area of the sciatic nerves, though it must be remembered that these symptoms may also result from displacement or disease of the sacro-iliac joint.

The treatment of these conditions is so varied and specialized that it is impractical for us to even touch upon it; however, we venture the assertion that it is worthy of your serious attention.

Metropolitan Building.

THE ETIOLOGY AND DIAGNOSIS OF ACUTE ENDOCARDITIS IN CHILDREN.

G. H. WITHERS, M. D.,
CHICAGO.

Frequently recognized, but more often overlooked or masked by the subsequent picture of the original malady is the onset of acute endocarditis in children. It is more prevalent than often supposed. In New York City, in 1914, the death rate for heart disease was 169 to the 100,000 population—exactly the same as for tuberculosis.¹ In Massachusetts, the same year, the death rate for heart disease was 15 per cent. of all the deaths.² The statistics vary little in the other states.

One of the most valuable and recent scientific progresses in medicine has been the recognition of focal infection as an important factor in the etiology of disease, and that from these foci occur

a general systemic distribution of micro-organisms,³ which have the property of elective localization.⁴ Especially is this most characteristic of the streptococci.⁴ The converging trend of the views of English, German and American investigators makes the hypothesis tenable, that endocarditis is caused by a streptococcus variously named: streptococcus viridans or mitis (Schotmuller), the endocarditis coccus (Libman), modified pneumococcus (Rosenow), saprophytic streptococcus (Horder), diplococcus rheumaticus (Poynton and Payne), streptococcus hemolyticus and others. It is now generally conceded that these terms apply to one and the same organism—usually designated as the *streptococcus viridans* group. This term includes, however, a variety of strains of various grades of virulence and which have special affinities for many different tissues. It has, likewise, been recently proved that a streptococcus bacteremia is present, in the great majority of cases of active endocarditis, and probably, in all in some stage of the disease.⁵ Of further interest is the fact that strains of streptococcus viridans isolated from the mouths of normal individuals, are similar to those isolated from the blood of endocarditis patients and are capable of producing heart lesions in the rabbit.⁶

In view of these facts, instead of considering the diseases of the heart from the old point of nomenclature—a stenosis, a regurgitation at this or the other aperture, failing compensation and the like (mostly based upon derivation of murmurs)—should we not look upon it as an organ invaded in the process of a bacteremia, and to go one step farther and not only recognize an existing pathology but give to it an etiological qualification? Whether the casual factor reaches its field in accordance with the implantation theory (Virchow⁷) or the embolic theory (Koester⁸), matters little, just so that we keep constantly before us the facts; that acquired acute endocarditis is secondary, and that the streptococcus or some of its strains, are so often present in scarlet fever, diphtheria, rheumatic arthritis, measles, pneumonia, influenza, typhoid, and in all infections of the pharyngeal, nasal, and laryngeal membranes, and may become elective at any time, and choose the cardiac structures as the field for their operation. In other words, what may be a simple rhinopharyngitis, tonsillitis,

adenoiditis or otitis media in a child, may prove to be the beginning of a disastrous heart lesion. The age most incident to acute endocarditis is from the fifth to the fourteenth years. The sexes are equally affected. To illustrate this view of its etiology I will cite, briefly, two cases:

CASE REPORTS.

Case 1. Mary C., first seen by the writer, March 6, 1915. American, age 7 years.

Complaint. Tired, languid, anorexia, slight yellowing of skin, vague pains in extremities, constipated, slightly feverish at times, shortness of breath.

Family History. Father non-alcoholic, mother neurotic, gave history of chorea as a child with no apparent heart sequelae. No rheumatism, tuberculosis, or lues. Two brothers older, one sister younger, all well.

Previous History. Breast baby, thrived well till weaned at twelve months. From then till eighteen months old did not do well because of improper feeding. Teeth, sitting, talking, walking normal in event. No illness during the first eighteen months. Since then has had repeated attacks of "colds," measles, varicella, two attacks of bronchitis. No history of tonsillitis, running ears or arthritis.

Present History. Ten days ago, child had "head cold," running nose, and slight redness of throat with fever. Mother states that it was no more severe than other similar attacks to which she was subject. Did not call physician. Kept child in bed and used home remedies. Seemed to improve for 6 or 7 days, when mother noticed a return of the fever, a malaise, and yellowing of the eyes and skin, at which time she brought the child in for examination.

Examination. General Condition. Fairly well nourished child, weight 45 lbs. Head, chest and length normal in ratio. No signs of old rickets. Conjunctiva, mucous membrane of the mouth, and skin markedly jaundiced. Temperature 101; respiration, 22; pulse 120 and irregular. No cervical adenitis.

Ears. Purulent discharge for the last 5 days from the left ear. Right negative.

Nose and Throat. Slightly injected. Tonsils hypertrophied.

Teeth. Slight carious.

Chest. Lungs. Few scattered rales otherwise negative. Heart. No increase in size 12cm. in diameter. No misplaced apex. A soft blowing, apical murmur not transmitted. No accentuation of the second sound.

Abdomen. Liver two fingers below the costal arch. Spleen not palpable. No rigidity or tenderness.

Reflexes. Normal.

Urinalysis. Nothing of value.

Diagnosis. Suppurating and draining left otitis media. A catarrhal jaundice, and a probable beginning invasion of the endocardium following a rhino-pharyngitis.

Treatment. Eliminative. Rest. Ice cap to the heart. Irrigation of the ear.

Subsequent History. March 10, 4 days later, sharp rise of temperature to 104; severe pain in head. Ex-

amination revealed an acute otitis media of the right ear, no tenderness over the left mastoid, liver about one finger, heart murmur more harsh, otherwise the same findings. Ear cleared up with phenol and glycerine. The suppurating ear cleared in three weeks. April 1, 1915. Examination. Ears negative, lungs negative, liver normal in size and no jaundice. Slightly irregular. Temperature: pulse rapid, over 100; youthful type of irregularity not present. Harsh, rough systolic murmur transmitted well into the axilla. Heart diameter by percussion, 13 cm., which is more than when first seen. Blood examination showed slight leucocytosis 9,200 and a micro-organism resembling the streptococcus viridans was obtained by blood culture.

This case seen at broken intervals, showed a slow progression of the process in the heart for a time. When last seen, Dec. 14, 1915, a picture of a chronic endocarditis presented itself.

Conclusions. What was apparently a simple rhinopharyngitis, became a bacteremia with the biliary tract, the middle ear and the endocardium, the varied seats of election for the offending organisms.

Case 2. Barclay G., aged 7 years. American school boy, Gary, Ind. Referred for diagnosis, May 4, 1914.

Family History. Neither parent neurotic or rheumatic. Only child.

Past History. Normal birth, weight 10 pounds; breast fed till 9 months; talked, walked, and cut teeth normally; not constipated. Never ill till present.

Present History. Feb. 8, 1914, felt languid, followed by sore throat. Temperature, 102; considered of little moment by attending physician. Returned to school in a few days, continued for one week. On the Friday of this week, coasted a little after school, came home and complained of feeling as the child put it, "My stomach feels all mixed up," and threw himself on the bed. He was put to bed. Temperature was 99; and he was given a laxative. The following day, Saturday, felt languid. Sunday, temperature, 101; vague pains through body, abdomen sensitive, no vomiting. From this time, March 1, to March 4, the diagnosis was variously made as either typhoid or appendicitis. The former was finally ruled out and the child prepared for operation. On this day it was noted that he was unable to walk or move his limbs without pain, so the operation was postponed for fear of a possible paralysis. Child taken home and kept at rest. In two weeks seemed better, but far from well as the child could be up only part of the day. No mention was made of a heart affection in these examinations. In April began to have an irregular type of fever, twitched a great deal, lost weight, and coughed spasmodically. This phenomenon with slight breathlessness, progressed till the child was brought to the office May 4, 1914.

Examination. General Condition. Fairly well nourished, bright child. Complete inco-ordination of muscles of locomotion as well as speech—a perfect picture of chorea. Weight, 49 pounds; temperature 100, pulse 120, irregular. Coughing constantly while at the office.

Nose, Throat and Ears. Negative. Tonsils not enlarged.

Chest. Lungs. Few rales, otherwise negative.

Heart. Harsh, musical systolic apical murmur transmitted all over the chest. Heart diameter by percussion, 14 cm.; accentuated second sound, misplaced apex beat.

Abdomen. Sensitive over lower right quadrant.

Reflexes. Exaggerated. Blood and urine not examined at this time.

Diagnosis. Endocarditis and chorea following a tonsillar infection.

Subsequent history interesting. The home of the parents formerly being in Philadelphia, they decided to take the child there for the rest which was ordered. On their arrival three days later, Dr. H. R. Wharton was consulted as to there being or having been a probable appendicitis. His diagnosis was negative. Dr. S. C. Hamil and later Dr. Lambert Edgar saw the case and substantiated the diagnosis made. The child was put to bed and in 72 hours there was a marked improvement, so much so that it was commented upon. Kept at rest for eight weeks, partial rest for eight weeks longer. In the fall returned to Chicago and was seen by me on Oct. 16, 1914. In excellent condition. Heart rhythm good, pulse 80, murmur harsh, presystolic and transmitted. Diameter 13 cm., weight 56½ pounds. Since that time with intermittent rest periods and watching his heart tolerance he has gradually improved. Seen last on March 3, 1916, he weighed 65¾ pounds and was enjoying a fair degree of health, but presented the picture of a chronic endocarditis.

It is convincing to a close observer that infection, no matter how slight, once reaching the heart, is simply the beginning, in the majority of cases of a progressive chronic inflammation. This may be either slow or rapid according to the virulence of the invading micro-organisms, and thus described clinically as benign or malignant. It likewise is evident that if, in rare instances, it becomes an arrested or healed lesion, that an irreparable damage is the result.

In the discussion of the diagnosis it is not my intention to present anything new nor a stereotyped method of elicitation or interpretation of findings, that if followed would always insure a positive diagnosis, but rather to refer to the difficulties that present themselves because of the vagueness and indefiniteness of the symptoms and signs of this disease and to show that only by the deduction of their individual values and the relative importance of each, correlating and viewing them in toto, can we hope to be acquainted at all with endocarditis in its incipency. The picture of acute endocarditis with its paucity of physical signs, vague symptoms, slight febrile reaction and possibly a soft, blowing systolic murmur (often incorrectly interpreted because of the commonly accepted view of

the relationship of a murmur or adventitious cardiac sound, to a heart lesion) is not the picture of chronic endocarditis with its more definite markings. For instance, its presystolic murmur transmitted, cardiac hypertrophy, the systemic effects and intermittent periods of failing compensation, all further corroborated by radiography. And yet, the first should be early recognized in order to limit the degree of the second.

The functional symptoms of acute endocarditis are varied and of little value. In fact, symptoms may be entirely absent. There may be shortness of breath on exertion, restlessness, prostration, anorexia or a condition of "not feeling or doing as well" in an otherwise normal convalescence. There is always a rise of temperature, but of no definite type. The pulse rate is always accelerated, but the rhythm usually remains unchanged.

The structural signs and symptoms, elicited by physical examination, have to do with the size, rhythm and sounds of the heart. In the examining of this organ of a child, a few salient anatomical and physiological characteristics must be kept in mind. The child's heart in comparison to the rest of the body, is relatively larger in size than that of the adult, and the lumina of the large arterics are relatively larger. The relation of the volume of the heart to the circumference of the aorta in earliest childhood is as is 25 to 20; at puberty as 140 is to 50, and at maturity as 260 is to 61 (Baginsky). The volume of the heart grows to twelve times its size from birth to puberty, while the circumference of the aorta only grows to three times its original size. Besides these, another great advantage to the child is that the circumference of the heart does not increase the first five years of a child's life, but the size and weight do. Therefore, the heart muscle is heavier and bulkier and more resistant without needing compensatory hypertrophy.⁹ These two factors are responsible for the slow increase in area of dullness during an attack of endocarditis in the child. The diameter of the normal cardiac dullness, as outlined by percussion, varies with age. It is rather constant from one to five years, being about 10 cm.; at four to nine years, 11 to 12 cm., and from ten to fifteen years, 13 to 14 cm. Percussion, being of value only in outlining the cardiac dullness, gives little or no information in acute endocar-

ditis of children for reasons stated above. Auscultation, however, often reveals the presence of a murmur which may be the only apparent symptom of the disturbance, and yet the most difficult of all signs to interpret. When is a murmur of value and when not? How to avoid the reducing of the child to a state of invalidism, often done by laying too much stress upon the murmur, but at the same time to early detect the ravages of a true endocarditis? Are questions to be answered.

Murmurs. In the classification and derivation of murmurs, a few pointed facts are worthy of mention. Because of its sensitive mechanism, the young, healthy heart may have marked variations in its size, rate, rhythm, and especially in its sounds. As to the last, little is known definitely of their causation. Therefore, an adventitious sound or murmur heard in this region means nothing, *per se*, and its mere presence should not be the basis alone of estimating the condition of the heart.

Murmurs are generally designated as *functional or hemic* and *organic*. These types may be differentiated as to location, character, quality and time of occurrence in the cardiac cycle of heart sounds. A murmur soft, blowing, systolic, and heard over the base is seldom organic; a murmur harsh or musical, diastolic or presystolic, heard over the apex and transmitted, is seldom functional. The *intensity* of a murmur bears a direct ratio to the amplitude of vibrations in the blood stream and, therefore, to the force of cardiac contractions and is not at all a criterion of the gravity of a lesion.¹⁰ *Posture* also influences the loudness of these sounds, some being more plainly, others less distinctly heard in the recumbent position. Mitral systolic murmurs, for instance, are more often louder in the upright than the supine posture.¹⁰

Organic murmurs must not be confused with:

1. *Cardio-pulmonary murmurs* (the systolic vesicular breathing according to Wintrich). They arise in the portion of the lung nearest to the heart and are due to the entrance of air into the edges of the lungs during inspiration, this air being changed regularly with systole and diastole. Recognized by their variability, become louder when respiration pauses during inspiration, weaker or wanting when the breath is held during expiration, occur more after the third year and in excitable children, and slight pressure

of the stethoscope increases them while more pressure obliterates them.¹¹

2. *Compression murmurs.* Pressure of the stethoscope over the chest wall of a rachitic child may change heart sounds into murmurs.¹¹

3. *Intra-thoracic venous murmurs* are frequent in all periods of childhood. Due to pressure on large vessels by bronchial glands, enlarged thymus, etc.¹¹

4. *Pericardial friction murmur*, the pressure of scope intensifies it. And *pleuro-pericardial murmur*, from the friction of the heart on a roughened pleura, disappears when breath is held.¹¹

And again, during a febrile illness, functional murmurs frequently appear. These are due to the temperature or the toxins produced by a microbic invasion of other parts and are of little moment. But, it is difficult to distinguish them from murmurs due to actual lesions of the valves, yet this is imperative. In fact, it may be necessary to wait till the fever subsides in order to be certain of their true significance. If then there is an absence of other cardiac disturbances, such as increased size and rhythm, and especially if there appears well marked the physiological phenomena termed *the youthful type of irregularity*,¹² it may be inferred that the heart has escaped. This last point is important and may be of great assistance in clearing up a diagnosis. On the other hand, if the murmur changes its character from day to day becoming more musical in quality and an increasing rate of pulse persists, it is probable that the heart has been invaded.

Other symptoms might be mentioned, as emboli, especially cerebral producing hemiplegia, and punctate hemorrhages into the skin and mucous membranes. And, finally, a blood culture and leucocyte count may aid in corroborating the above findings.

Thus, the complex syndrome of an apical, systolic transmitted murmur not modified by pressure with the stethoscope or by respiratory pauses; an irregular rapid pulse, misplaced apex beat, irregular type of fever, with or without a slight increase of cardiac dullness following in the wake of any infection, should direct suspicion to the probable invasion of the cardiac structures, and should be sufficient reason to keep the case under surveillance until the diagnosis can be ultimately established.

The excuse, then, for this paper, is:

Because of the prevalency and the progressive nature of endocarditis.

Because, in the newer knowledge of the etiology of disease, cardiac structures occupy a vulnerable position in the role of focal infection.

Because childhood is the more susceptible period of these infections it is important not only to diagnose endocarditis in its incipency, in order to guard and protect the life of the individual, but that all prophylactic measures and methods known today for its prevention should be instituted. For once endocarditis manifests itself in a heart, the damage is forever and beyond repair.

REFERENCES

1. Editorial: The Jour. A. M. A., Jan. 20, 1916, 359.
2. Dublin, L. I.: Mortality of the Industrial Population in Mass., Pub. Health Bull., Mas. State Department of Health, Nov., 1915.
3. Billings, Frank: Focal Infection, Jour. A. M. A., Sept. 21, 1914, 899.
4. Rosenow, E. C.: Elective Localization of *Steutococci*, Jour. A. M. A., Nov. 13, 1915, 1687.
5. Oille, J. A.; Graham, Duncan, and Detweiler, H. K.: *Streptococcus Bacteremia in Endocarditis*, Jour. A. M. A., Oct. 2, 1915, 1159.
6. Detweiler, H. K., and Robinson, W. L.: Experimental Endocarditis, Jour. A. M. A., Dec. 2, 1916, 1653.
7. The Heart and the Arterial System, Babcock, 1903, 152.
8. Virchow's Archiv fur pathologische Anatomie, 1878, 257.
9. Pfaunder and Schlossman: The Dis. of Children, 1912, 452.
10. Babcock: The Heart and the Arterial System, 1903, 23-24.
11. Pfaunder and Schlossman: The Dis. of Children, 1912, 455-458.
12. Mackenzie, James: Dis. of the Heart, 1914, 183.

SURVIVAL OF SUPERSTITION AS FOUND IN THE PRACTICE OF MEDICINE.*

J. M. BEVERIDGE, M. D.,
OREGON, ILLINOIS.

Superstition, even at its worst, is only a relative term. We might easily agree on a definition but differ widely on the application. I will give two concise definitions: "A fixed belief without reason" and "A groundless belief in supernatural agencies." Superstition is not only a relative term but it is also an objective term. It is rarely or never a subjective term. The faith of one is the superstition of his neighbor. What we denote as superstition may have been the sound faith of our fathers. We are now fairly well informed of the controlling laws of many phenomena which only a few years ago were considered as the direct acts of Providence. I remember when a boy of asking a physician the cause of cerebro-spinal meningitis and the pitying glance he gave me as he asked "what caused any disease." No one present apparently

*Read before the Tri-State District Medical Society at Freeport, Sept. 26, 1916.

had any idea that this disease had a direct specific cause or was in any way preventable.

Present day medicine is not a recent creation. It is an evolution so old that it is lost in the obscurity of the twilight ages. Among primitive people was the belief that but for external causes man would be immortal; that death was always due to some enemy, either human, deity or demon. And it was in the instinctive love of life, in the warfare against these real and supposed enemies, that the practice of medicine had its inception. Out of complete ignorance, universal superstition, burdened with the myths and legends of the old pantheism, this belief in immortality and this striving after eternal life has evolved our noble profession.

Medicine is often spoken of as a sacred profession, but in the beginning it was entirely in the hands of the priesthood and in the guise of religion. And the cause of disease was usually referred to some deity or demon, so treatment was by prayer, sacrifice, incantation, wearing of charms or amulets. And today we might find some in Freeport who would tell us disease is only error and recommend prayer, incantation or absent treatment. Or we might find the man who carries the buckeye for rheumatism. In some languages the words medicine and mystery are derived from the same root and have nearly the same meaning. The first physicians of whom we have any record were the Egyptian embalmers, who do not seem to have been very popular, as they were often stoned after performing their duties. This was a bad precedent, as ungrateful patients still manifest the same disposition. The Egyptians, Chaldeans and probably Hebrews often exposed their sick in public places, so that they might have the benefit of those who had similar troubles. Another bad precedent of telling all your troubles to the sick. The most rational idea which has come from the Egyptians was that all who recovered must go to the temple and record their symptoms and method of cure, but as no records were kept of those who died this data must have been incomplete and misleading. In the code of laws of Hamurabi are many relating to the practice of medicine and establishing a fee bill for many services. This code is one of the oldest known, antedating the laws of Moses by about 400 years. Chinese medicine has always been a horrible mixture of ignorance, cruelty, superstition and

disgusting materia medica with no rational basis, and from it we have nothing of value. The Hebrews had laws of hygiene for their every day life, preparation of food, care of the dead, quarantine of contagious diseases and regulation of marriage, far ahead of their times, but in the study of disease they made but little progress.

Hippocrates, who flourished in Greece about 400 B. C., appears to be the first to recognize the dignity of the profession, and the first to separate the practice of medicine from the priestly office. Having but little knowledge of anatomy or physiology, his treatment was empirical, but his methods were those of the true scientist. His observations were so keen and his deductions so accurate as to be valuable after 2,000 years. He appears to be the first to refer diseases to their efficient causes rather than to some offended deity or demon, and to him may be ascribed the beginning of the liberation of medicine from universal superstition, and he well deserves the name of "Father of Rational Medicine." During the next 800 years, up to the fall of the Roman Empire, medicine progressed slowly, but always hampered by prevailing superstitions.

Following the decline of paganism and the establishment of Christianity, medicine retrograded rather than advanced, as all the learning of the times tended towards religious controversies over trivial questions, and the study of anatomy was forbidden by the influence of the church. The only progress during this period was by the Arabians, who were then at the height of their power and influence. It was not till early in the 17th century that there was much serious investigation by medical men along truly scientific lines. Then Harvey discovered the circulation of the blood, then Peruvian bark was used for malaria, although empirically till recently, then began the experimenting of the action of drugs on living animals, thus initiating a rational method of treatment.

But during these same years we find learned scholars gravely asserting their belief in witchcraft, treatment was often by charm or incantation, and the frequent epidemics were regarded as evidences of divine displeasure rather than of faulty hygiene. In these years of real progress in the puritan town of Salem, Mass., twenty persons were executed as witches. Later, when

Dr. Jenner introduced vaccination as a preventive of smallpox, there was violent opposition by well meaning persons who asserted he was interfering with a divine prerogative. When Sir James Simpson used the recently discovered anesthetics in obstetrics he was fiercely assailed by the clergymen for interfering with the primeval curse "in sorrow shalt thou bring forth children."

During the past 200 years progress has been continuous. Mists have been cleared away. Efficient causes of disease have been determined. A better knowledge of anatomy, physiology and pathology has opened the way to rational treatment instead of the former empiricism. Since the perfection of the microscope and other instruments of precision, progress has been very rapid. No problem seems too difficult to undertake, and never was hope for the future brighter than today. But is this light of reason universal? Have intolerance and superstition disappeared from the learned and to be found only among the illiterate and ignorant? Have we any who would put the brake on the wheels of progress?

We have among us a pseudo-religious organization, known as Christian Scientists, so-called, as some one said, for the same reason that guinea pigs have their name. "They are *not* pigs and do *not* come from Guinea." When a bill was before Congress to establish a National Health Bureau, it was opposed by the National League for Medical Freedom, including the Christian Scientists, the worst of our quacks and the manufacturers of the most fraudulent patent medicines.

The writings of the great leader of the Christian scientists are often so obscure that it is difficult to grasp the meaning, if any were intended, but here are a few plain quotations:

"It is *not* scientific to examine the body to determine if we are in health." "The evidence of your senses is *not* to be accepted in cases of sickness." "The only effect produced by medicine is dependent on mental action."

They are irrational in the claim that medicine has no effect except by mental action, as they recognize that it may kill in toxic doses with or without mental action. The Christian Scientist also teaches what he calls "malicious animal magnetism," that is, that one person may with evil intent inflict serious injury on another even

at a distance solely by mental means. This is only a recurrence of the old belief in the evil eye for which witches were burned 300 years ago. Only a few years ago a case was brought into court in which one of this cult was pleading that he had suffered severe injury by this malicious animal magnetism. It seems a strange coincidence that this suit was brought in Salem, Mass., where witches were executed in the 17th century. Christian Science is not a true science as it is not founded on systematized facts but on a sweeping assumption, contrary to universal belief and experience, and the accumulated facts of the ages. It is a fixed belief without reason; it is a groundless belief in supernatural agencies. It is superstition. But as this is a relative term, so the Christian Scientist from his superior plane, calmly answers "All medicine is superstition."

Let us consider some other superstitions now prevalent. An old woman told me she had a remedy for afterpains. Take some chips from the hog trough where it is worn smooth by the hogs rubbing on it, make a tea of these and you will have a specific. In measles with delayed eruption I have been told that "nannyberry" tea will be useful. You can secure the berries in any sheep yard. I have never given these prescriptions a fair trial and so cannot vouch for them.

When everything else fails in heartburn take three living earthworms, wrap them in a plantain leaf and swallow entire. I told a father his baby had thrush. He told me a few days later that he knew what to do when he knew what it was. He got a live minnow from the river and put it in the child's mouth, which resulted in a speedy cure. He said a small frog would do as well but neither must be washed, as the slime was the active agent. In almost every case of erysipelas some kind friend insists that a string doctor be called. The string doctor passes a cord over the eruption, says a few magic words and the cord must be burned. I once had a case in which I learned later I had the assistance of a string doctor and a Christian Scientist, and the patient recovered in the usual time. I was called to see a baby whose grandmother said had the "go backs" and insisted that it be taken to a wise woman in Polo, who would powwow over it and effect a cure. I was once told if I would nail a lock of my hair to a tree, cut off the

lock and leave it there, I would not have asthma. I neglected the treatment and occasionally have asthma. In an obstetrical case the mother requested that some of the placenta be preserved as a neighbor wished to remove a birthmark from her child. I have been asked the time of the moon to wean a baby and have been compelled to confess my ignorance. A family once delayed a tonsillectomy. The father explained later that they waited for the dark of the moon to lessen hemorrhage. I have seen people badly worried when the patient improved on Sunday, and a teacher in a normal school told me she was not superstitious but she would not allow her mother to have an operation on Friday. I am often asked if a child is liver grown. I cannot describe the disease but can give the treatment. Take the child by the left leg and pass it three times around the leg of a table. A man finally found a sure cure for rheumatism. It was to carry a potato in his pocket. A doctor in southern Indiana was nearly mobbed when he trimmed the nails of a pneumonia patient. The natives expected death after this treatment.

A Minnesota doctor writes me that a woman would not allow an operation on her child till the sign of zodiac pointed to the part of the body requiring the operation; also if the umbilical cord is dressed pointing to the northwest the child will not have colic. I know a doctor who kept a record of the sign of the zodiac in which his obstetric cases occurred. This is in full accord with the belief of the middle ages. I suppose everyone here could give some infallible cure for warts learned in childhood. We have seen asafetida on children's necks to prevent contagion. We have seen rings worn to cure rheumatism. I think everyone here could furnish additional evidence of the tenacity to which we hold to these relics of the old paganism.

Now, what moral would I draw from this phase of medical history and this collection of absurdities? I have endeavored to relate that originally man's conception of disease was based on superstition, and treatment was empirical or even fanciful. That all the enlightenment of the centuries has not entirely eradicated the remnants of the old pantheism.

I would make a place for more rational medicine. Let us remember that the workings of all Nature are by law, that disease is only Nature working through law. The law may not be un-

derstood, but the law remains. That for every pathological condition there is a definite cause, often not understood, sometimes unknown. It may be a microorganism, a chemical irritant, a lack of proper nourishment of the part affected, some tissue or organ subjected to a strain greater than it can bear, and Nature is exacting the penalty.

But more I would urge that we be rational in treatment. Let us not use some drug or treatment because some doctor or detail man said it was good in this disease, but because we understand the mechanics and action of the treatment. A few years ago there was in our schools an epidemic of therapeutic nihilism. One reason for this was at that time surgery was exalted, and *Materia Medica* and *Therapeutics* neglected. Consequently many of us came from school well qualified to tell how to perform hysterectomy, but knowing little of how to differentiate the various headaches for treatment, and many other simple things of which we see fifty to one of indicated hysterectomy. Another reason for this nihilism is that our markets have been flooded with inferior and dishonest drugs, from which we cannot get full physiological action. Let our therapeutic measures, whether by surgery, drugs, treatments, diet or exercises be with reason; to fill some definite indication. Let us not use a prescription, or a vaccine, as the stock vaccine men say, with a dozen ingredients in the hope that one of them will reach the case. If we use a drug let us use it till it fills its indication and no more. Let us always strive to have a reliable preparation so that dosage may be accurate and results more definite. A little observation will convince you that the goods of one manufacturer may require twice the dose of another, and many are absolutely inert. It is well to be cautious in the use of any drug or treatment where we do not understand the physiological action, no matter how well recommended for any disease.

Let our reason ever be faithful and when dealing with things unknown, of which we have many in medicine, and we must proceed on faith, let our faith be reasonable. With a reasonable faith and a faithful reason, with a better education of the masses, and a clearing away of mystery medicine should proceed to a pure science.

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1915-16

PRESIDENT.....WILLIAM L. NOBLE, Chicago
 PRESIDENT-ELECT.....E. B. COOLLEY, Danville
 FIRST VICE-PRESIDENT.....C. F. NEWCOMB, Champaign
 SECOND VICE-PRESIDENT.....R. A. MCCLELLAND, Yorkville
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARP, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, Chairman, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, Managing Editor, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksonville
 D. R. MACMARTIN.....Chicago
 C. B. KING, Chairman.....3938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, Secretary.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

APRIL, 1917

Editorials

THE ANNUAL MEETING.

To the Members: Come to Bloomington May 8, 9 and 10 to the state meeting. For many weeks the various committees have been working and planning how they could make your visit to Bloomington one of much profit and pleasure.

The Reception Committee wish to announce that you will find at each railroad station a "free information" bureau for your benefit. It is the intention of this committee to meet all trains with automobiles to take you anywhere you wish to go. All members of this committee will be properly "badged" so you will know whom to ask, and be sure to make your wants known.

Registration: The committee wish to announce that Registration is imperative. Headquarters will be at the Masonic Temple, two blocks east of the Court House, on East Jefferson street. The registration booth will be on

the first floor of the Masonic Temple, just inside the main entrance.

Entertainment: At 8 o'clock on Monday night in the Auditorium of the New High School building, there will be a meeting open to the public. There will be good speaking on subjects that will interest all.

Dr. Beck, of Chicago, on "prevention of blindness," and Dr. Tivnen, of Chicago, on "prevention of deafness," will be among the speakers to address this meeting.

Eye, Ear, Nose and Throat Section: On Tuesday morning, May 8, as has been the custom, this section will have a clinic at Brokaw Hospital beginning promptly at 10 o'clock. Ear and eye cases will be operated on at this clinic. Following the clinic there will be a luncheon at the hospital.

In the afternoon there will be a clinic of nose and throat cases at St. Joseph's Hospital.

Tuesday evening at 7 o'clock there will be a banquet at the Bloomington Country Club. Tickets will be \$2.50 per plate. There will be music and other entertainment. Dr. Kellogg Speed, of Chicago, recently from the French front, will tell of his experiences. Mr. Robert J. Folonie, our attorney for the State Medical Society, will also address this meeting.

On Wednesday morning at 10 o'clock the ladies will be entertained with an automobile drive, automobile and drivers being furnished by the physicians of Bloomington, who will be accompanied by wives of the physicians. This automobile trip will end at the Bloomington Country Club, where a luncheon will be served at 1 o'clock.

There will be various other entertainments provided for the ladies during the afternoon and in the evening they will be given a theatre party, so be sure to bring your wife. We will see to it that she has a good time.

On Wednesday at 10 p. m. in the Illinois Hotel there will be a smoker. Plan to stay over for this. There will be plenty of good things to eat. This committee has provided good music and lively entertainment. We want you to come and make yourself at home.

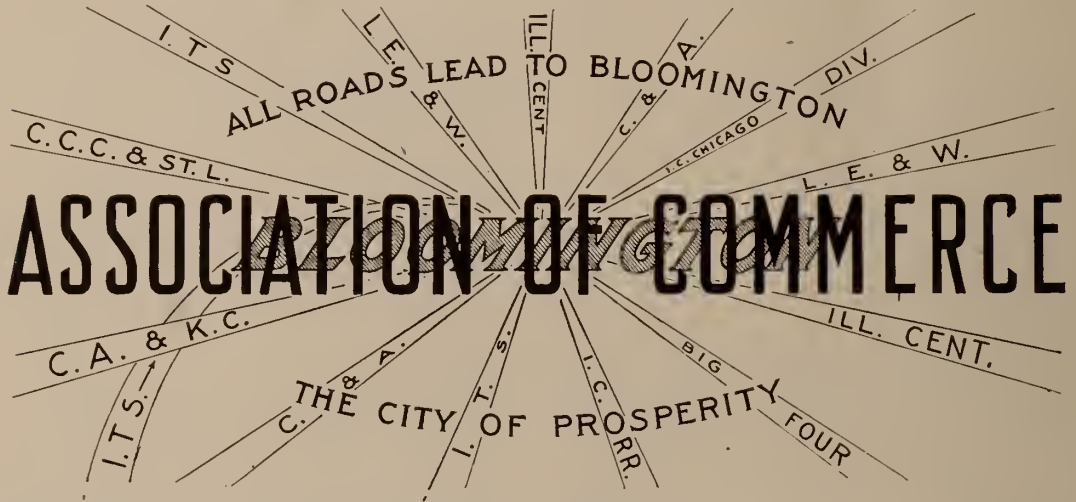
Reservation: The reservation committee are fully prepared to take care of any and all requests for quarters and will respond promptly to all communications and will gladly make any reservation desired.

You should write early about this so as to facilitate the work of the committee, as it will be difficult to avoid mistakes in a rush.

When you write, specify the number in your party, the probable length of your stay and

whether you wish hotel or private family accommodations.

Address all inquiries for reservation to,
Dr. L. B. Cavins,
311 Peoples Bank Bldg., Bloomington, Ill.



BLOOMINGTON 1917 CONVENTION CITY.

By J. H. HUDSON,

Secretary Association of Commerce

The Bloomington Association of Commerce, through its Convention Bureau, extends to the members of the Illinois State Medical Society a most cordial invitation to attend the coming annual meeting to be held in our city on May 8, 9 and 10.

We desire to call your attention to the geographical location of Bloomington, and the easy

accessibility to every part of the state. The accompanying illustration shows the railroads leading into Bloomington from fourteen different directions.

It is possible to reach our city from practically one-half of the counties of Illinois without a change of cars, and from three-fourths of the counties with but a single change of cars. Eighty passenger trains arrive and leave Bloomington every twenty-four hours.

Eight well marked automobile trails lead to our city, and the roads are kept in good condi-



MASONIC TEMPLE.

tion during the motor season. Many of the roads are oiled, and you will enjoy an automobile trip to Bloomington. We have splendid hotel accommodations, and on occasions which sometimes tax the capacity of our hotels we are always able to secure first-class accommodations in good private homes.

A delightful program is being planned for your entertainment, and it is the hope of our good people that many hundreds of the Illinois doctors and their ladies will attend this meeting.

Bloomington entertains many conventions each year, and has a reputation for doing things right. Your ladies will enjoy our beautiful drives and parks, our up-to-date stores and the general hospitality of our people.

The medical profession in our city comprises the highest type of men and they are working hard for the success of this meeting.

Our people are looking forward with great pleasure to entertaining the Illinois Medical men and women.

The business sessions will be held in the Masonic Temple, which is one of the finest temples in Illinois.

We will maintain a bureau of information in the lobby of the Temple, where a list of available rooms and accommodations will be kept and information furnished all visitors.

An automobile trip is being arranged for the ladies, and numerous entertainments will be provided insuring a most enjoyable time. The local committee are all at work and you will miss a good time if you stay away.

Come early and stay late.

ILLINOIS STATE MEDICAL SOCIETY PRELIMINARY PROGRAM.

SIXTY-SEVENTH ANNUAL MEETING.

Bloomington, May 8, 9 and 10, 1917.

SECTIONS ONE AND TWO.

Diabetes—The Initial Fast and Tolerance Testing. E. J. Brown, Decatur.

Experiences With Starvation Treatment in Diabetes. A. C. Croftan, Chicago.

Radium. Albert Woelfel, Chicago.

Cæsarean Sections. H. M. Orr, La Salle.

Constipation, Its Causes and Management. E. E. Wilkinson, Danville.

Late Results of Goiter Operation. E. P. Sloan, Bloomington.

Hemolytic Jaundice. C. A. Elliot, Chicago.

President's Address. W. L. Noble, Chicago.

Oration in Medicine. The Rôle of Syphilis in Internal Medicine. Alfred S. Warthin, Professor of Pathology, University of Michigan, Ann Arbor.

Title to be announced. E. S. Judd, Rochester, Minn.

The Physician and the Proof of Death or Disability for the Insurance Company. C. U. Collins, Peoria.

The Roentgen Findings in Luetic Lesions. E. S. Blaine, Chicago.

Exhaustion in the Acute Psychoses. F. P. Norbury, Jacksonville.

Morbidity Incident to Obscure Hernias. J. L. Wiggins, E. St. Louis.

One Step Further in the Treatment of Acidosis in Children. H. C. Blankmeyer, Springfield.

Operation for Cystocele by the Abdominal Route. W. L. Gray, Champaign.

Symposium

1. Specificity and Non-Specificity of Vaccines. (15 minutes.) D. J. Davis, Chicago.

2. Vaccines for Prophylaxis. (15 minutes.) G. F. Ruediger, La Salle.

3. Vaccines in Internal Medicine. (15 minutes.) L. J. Mix, Chicago.

4. Vaccines in Typhoid Fever. (15 minutes.) S. R. Slaymaker, Chicago.

5. Vaccines in Pertussis. (15 minutes.) H. W. Cheney, Chicago.

Head Injuries With Special Reference to Their Intracranial Complications. T. A. Davis, Chicago.

Oration in Surgery—The Conquest of Cancer. Alexis McGlannan, Baltimore, Md.

Individualization in the Treatment of Surgical Inflammations. E. H. Ochsner, Chicago.

Fracture of the Pelvic Bones and Resulting Injuries to the Urethra and Bladder. H. C. Mitchell, Carbondale.

Lest We Forget, or Crawford W. Long, the First Anesthetist. C. B. Johnson, Champaign.

Surgical Emergencies in the Uro-genital Tract and Their Management. F. Kreissl, Chicago.

Rôle of the Prostate in Acute Gonorrheal Infections. Ben Baird, Galesburg.

The Lower Abdominal Incision. H. T. Byford, Chicago.

Plastic Surgery. Lawrence Ryan, Chicago.
Filariasis From a Surgical Standpoint. H. M. Greaves, Sidney.

An Etiological Study of Arthritis. W. L. Rainey, E. St. Louis.

EYE, EAR, NOSE AND THROAT.

May 8.

The Eye, Ear, Nose and Throat Section will hold clinics for the eye and ear at the Brokaw Hospital, while the nose and throat work will be done at the St. Joseph Hospital. Clinics will start at 10 a. m. and continue until all cases have been disposed of.

Banquet.—At 7 p. m. a banquet will be given for the section at the Country Club, at which special entertainment will be provided. Dr. Kellogg Speed will give an illustrated talk on "Surgical Experiences in France, With Special Reference to Eye, Ear, Nose and Throat." Mr. Robt. J. Folonie, attorney for the Illinois State Medical Society, will give a talk on a subject that will be of interest to all. Price per plate, \$2.50.

May 9.

Reading of papers will commence at 9 a. m., Blue Lodge Room of the Masonic Temple. A stereopticon will be provided. Papers limited to 10 minutes and each discussion at two minutes.

Program.

Treatment of Catarrhal Deafness. M. F. Arbuckle, E. St. Louis. Discussion, I. M. Miller, Kewanee.

What the State Can Do to Prevent Blindness. Willis O. Nance, Chicago. Discussion, A. L. Adams, Jacksonville.

The Sub-Mucous Operation. John A. Cavanaugh, Chicago. Discussion, Oliver Tydings, Chicago.

Treatment of Membranous Cataract. Harry Woodruff, Joliet. Discussion, Francis Lane, Chicago.

Operative Procedures on the Nasal Accessory Sinuses. Illustrated. Norval Pierce, Chicago. Discussion, A. H. Andrews, Chicago.

Eye and Ear Work in a General Hospital. Frank Allport, Chicago. Discussion, Arthur M. Corwin, Chicago.

The Management of Tonsillar and Adenoid Hemorrhage. Henry R. Boettcher, Chicago. Discussion, Joseph Z. Bergeron, Chicago.

Primary Mastoiditis With Report of Case.

Robert Sonnenschein, Chicago. Discussion, Wright C. Williams, Peoria.

Depressed Nasal Deformity Corrected by Bone Transplantation. L. Ostrom, Rock Island. Discussion, Frank E. Brawley, Chicago.

The Treatment of Vitreous Opacities. Wesley Hamilton Peck, Chicago. Discussion, James W. Dunn, Cairo.

The Importance of After-treatment Following Tonsillectomy. C. F. Burkhardt, Effingham. Discussion, John E. Deal, Springfield.

Optic Nerve Involvement in Tabes and General Paresis on the Line of New Investigation. Geo. F. Suker, Chicago. Discussion, R. C. Matheny, Galesburg.

Some Observations on the Decompression Operation on the Hypopysis by the Nasal Route. Otto J. Stein, Chicago. Discussion, J. Holinger, Chicago.

Management of Malignant Disease of the Upper Respiratory Tract. Illustrated with stereopticon slides. Joseph C. Beck, Chicago. Discussion, S. A. Friedberg, Chicago.

The Kronlein Operation. Edward E. Edmondson, Mt. Vernon. Discussion, Mayer H. Lebensohn, Chicago.

The Use of Bacillus Coli Communis in the Treatment of Tuberculosis of the Larynx. Harry Kahn, Chicago. Discussion, Otto T. Freer, Chicago.

Operation for Anterior Synechia With Report of Cases of Secondary Glaucoma and Staphyloma in Which It Was Used. Chas. G. Darling, Chicago. Discussion, H. Gradle, Chicago.

The Use of Trichloroacetic Acid in the Treatment of Atrophic Rhinitis. W. G. Hatch, Rockford. Discussion, Thomas O. Edgar, Dixon.

Presentation of a Device to Immobilize the Head and Eye Lids During Operations on the Eye Ball. E. R. Crossley, Chicago. Discussion, E. H. Garraghan, Chicago.

Diagnosis of Acute Mastoiditis and Indications for Operation. A. E. Sherman, Aurora. Discussion, Cassius M. Craig, Champaign.

SECRETARIES' CONFERENCE.

President's Address. H. B. Henkel, Springfield.

The Organization of Medical Legislative Work in the County Society. F. C. Gale, Pekin.

The Duties and Problems of the Secretary of

an Active County Medical Society. T. G. McLin, Jacksonville.

The Importance of Legislative Work. Don Deal, Springfield.

To be announced. T. D. Doan, Scottville.

HEALTH SUNDAY.

BLOOMINGTON, ILLINOIS, MAY 6, 1917.

The following is a partial list of the churches in Bloomington that will extend their pulpits to the physicians of Illinois, for "Health Sunday," May 6. Each pulpit will be filled with members of the medical profession, who will speak on "Health." A general mass meeting will be held in the evening at the Second Presbyterian Church.

Dr. Arthur M. Corwin (Chicago), First M. E. Church.

Dr. Augustus O'Neill (Chicago), Grace M. E. Church.

Dr. James A. Clark (Chicago), Park M. E. Church.

Dr. C. St. Clair Drake (Springfield), First Christian Church.

Dr. E. B. Coolley (Danville), Second Christian Church.

Dr. Marion K. Bowles (Joliet), Third Christian Church.

Dr. Martin Ritter (Chicago), First Baptist Church.

Dr. Effie Lobdell (Chicago), First Congregational Church.

Dr. William Sadler (Chicago), First United Brethren Church.

Dr. Wm. O. Krohn (Chicago), Second United Brethren Church.

Dr. Bertha Van Hoosen (Chicago), German Methodist Church.

Dr. A. F. Benson (Bishop Hill, Ill.), Swedish Methodist Church.

Dr. Clara P. Seippel (Chicago), First Presbyterian Church.

Dr. John Dill Robertson (Chicago), Second Presbyterian Church.

NORMAL CHURCHES, NORMAL, ILL.

Dr. Lena V. Sadler (Chicago), First Presbyterian Church.

Dr. Edith B. Lowry (St. Charles, Ill.), First M. E. Church.

MASS MEETING.

SECOND PRESBYTERIAN CHURCH.

Sunday Evening, May 6, 1917.

Dr. W. L. Noble, President, Illinois State Medical Society.

Dr. John Dill Robertson.

Dr. Wm. A. Evans.

STATUS OF HOUSE BILL No. 657, ON APRIL 4, 1917.

MEDICAL PRACTICE ACT.

AN ACT TO PROTECT THE PUBLIC AGAINST INCOMPETENT PRACTITIONERS OF THE HEALING ART.

At the meeting of the Judiciary Committee on April 4, 1917, this bill was referred to a sub-committee, consisting of Edward D. Shurtleff of Marengo, Truman A. Snell of Carlinville, Horace W. McDavid of Decatur, Guy Guernsey of Chicago, Ralph E. Church of Evanston, William H. Dieterich of Beardstown, Edwin C. Perkins of Lincoln.

The above named sub-committee of the Judiciary Committee, from 3 o'clock in the afternoon—with a recess for lunch—until 10 o'clock at night, gave their full time to the consideration of this bill, section by section, listening to all the arguments of the doctors, osteopaths, chiropractics and other practitioners of the healing art, and, after some minor amendments, voted to report the bill favorably to the full Judiciary Committee, with recommendation that the Judiciary Committee report the same to the house, recommending its passage.

Drs. C. St. Clair Drake, L. C. Taylor and Don W. Deal, and your president, were all present during this session. We are convinced that if this bill is enacted into law, it will be the most rational and comprehensive medical practice act of any state in the Union, safeguarding the interests and welfare of the people better than the practice acts of any other state, and providing for the gradual improvement in educational qualifications, not only of doctors of medicine and surgery, but also of "all other practitioners." Every doctor in the state should make it his business to urge his representatives in the gen-

eral assembly to support this bill as passed by the Judiciary Committee.

W. L. NOBLE,
President, Illinois State Medical Society.

THE MEDICAL PRACTICE ACT

AN ACT TO PROTECT THE PUBLIC AGAINST INCOMPETENT
PRACTITIONERS OF THE HEALING ART

HOUSE BILL NO. 657

What It Does

1. Revises and rewrites the present medical practice act, bringing it in accord with the New Administration Code.

2. Arranges the subjects in a natural and logical order. As it now stands, it is a hodge-podge and jumble, almost impossible to interpret.

3. Preserves the principles of the present act and makes the following substantial changes:

(a) Prohibits a non-medical practitioner from holding himself out to practice any system of healing other than that for which he is licensed; for example, a chiropractor cannot advertise himself as an osteopath, etc.

(b) Recognizes the different systems of non-medical practice and licenses the practitioner to practice the system which he has studied in his school.

(c) Provides educational standards for all practitioners. *Under the present act no educational standards of any kind are fixed for non-medical practitioners.*

(d) Requires the minimum of professional education for non-medical practitioners. *None required at present.*

(e) Requires that non-medical practitioners shall be examined only in those subjects a knowledge of which is absolutely essential to the practice of the drugless healing art, excluding at least four subjects in which the physician and surgeon is examined, viz.: materia medica, therapeutics, surgery and obstetrics.

(f) Extends the reciprocity licensure privilege to all physicians. At the present only those licensed since July 1, 1899, enjoy this privilege.

(g) Defines more definitely than the present act the causes for revocation of a license.

4. It continues in force all unrevoked licenses prior to July 1, 1917.

What Its Purpose Is

1. To afford the public a larger measure of protection against quacks and incompetents.

2. To require all practitioners to hold themselves out to the public for only that which they really are licensed to do.

3. To establish educational standards high enough to assure practitioners of a fair degree of intelligence.

4. To put Illinois abreast of other states in medical registration and licensure.

5. To remove the stigma now attaching to Illinois as "The plague spot of medical registration."

6. To prevent the breaking off of reciprocity arrangements with other states whose standards of medical registration are higher—and that means most of the states.

7. To bring the Medical Practice Act in accord with the new Administration Code.

W. L. NOBLE,
President.

NOBLE M. EBERHARDT,
DON W. DEAL,
E. P. SLOAN,
Legislative Committee.

A REVISION OF THE MEDICAL PRACTICE ACT.

There is before the legislature a bill for the amendment or revision of the Illinois Medical Practice Act. It is known as House Bill 657, and has several provisions which are of especial interest to our members.

For about ten years there has been some effort made to get a reciprocity clause into the Illinois practice act, which would include those physicians who graduated previously to 1898, but up to this time, no progress has been made toward that result. House Bill 657 includes a reciprocity clause for those physicians graduating prior to 1898, and for this reason every physician in Illinois should work for the enactment of this bill. Some of the other states have had a reciprocity clause in their practice act for years, but Illinois has not reciprocated, hence no Illinois physician who graduated before 1898 may practice in other states without examination.

Another important feature of the bill is the requiring of the same preliminary educational qualifications for all cults, healers and other irregular practitioners, as is required of regular physicians, with the exception of midwives, who must have an education equal to that given by the grammar schools.

The bill has other provisions which are desirable, and the profession should see that its representatives are favoring the passage of this law.

MEDICAL DEPARTMENT OF THE UNIVERSITY.

The following appeal from President James of the University of Illinois for money with which to build up the Medical Department of

the University, should be of interest to every member of our Society. If the great state of Illinois is going to maintain a university, and we believe Illinois should, then it should be a university with a standing second to none. If the University of Illinois is going to maintain a medical department, then this medical department should be second to none.

The Medical Department should be a big school, giving the best study course and training in all departments of medicine and surgery. There must eventually be other departments added to this institution. The Medical Department has not the clinical facilities it must have. Research work must be encouraged. The College can fairly well care for its freshman and sophomore classes. The junior and senior classes are not given the advantages necessary for present-day training. There should be added a training for health officers and sanitarians. There must be laboratories built such as do not now exist.

No medical institution worthy of the name can be established and maintained on the fees of students. The day of such medical schools is past. Let Illinois have a medical department, or let it have none.

University of Illinois,
President's Office.

Urbana-Champaign, Ill., March 4, 1917.

To the Members of the State Medical Society:

Friends: You are all aware of the movement to enlist the strength of the state in the support of medical education and research.

I have been twelve years at the University of Illinois. We have put up the question of an appropriation for the benefit of the Medical School of the University four different times. Each time the answer of the legislature has been overwhelmingly favorable.

The first answer showed itself in an appropriation of \$386,000 for the support of the medical school. This was passed by an overwhelming majority in both house and senate, but Governor Deneen vetoed the bill.

Subsequently, the legislature appropriated the sum of \$60,000 per annum for the support of the Medical School. This was approved by the governor, but subsequently thrown out by the state supreme court on the ground that some amendment to the bill had not been printed.

Finally, four years ago, the legislature defeated, by an overwhelming vote, a motion to prevent the trustees from using any portion of their funds in the support of the Medical School.

Since that time the trustees have begun, in a systematic and thorough way, the development of a Col-

lege of Medicine upon the same basis as the other colleges of the University.

For the year ending June 30, 1916, the University spent on the Colleges of Medicine and Dentistry and the School of Pharmacy the sum of \$213,301, the great bulk of this for the College of Medicine.

We have succeeded in organizing the laboratory years on a very satisfactory basis. The work is done by competent men of good repute. The equipment is fairly satisfactory. The laboratory facilities are becoming better every day.

The attendance at the college, which was over five hundred when we began to improve the school, diminished rapidly under the advancing requirements for admission. When we finally put in our requirements of two years of college work as a preparation for medicine, the freshman class sank from 125 to 12. This, of course, was the common experience of all first-class medical schools in the United States.

I expected that the total attendance would fall to 100 before it began to recuperate, but greatly to our surprise and satisfaction the lowest mark in attendance was reached with a number slightly over 200.

It looks now as if the attendance would grow steadily to four or five hundred, which number would be quite in excess of our possibility of taking care of them at the present time.

The problem before the University now is to put its clinical work in the same fundamental and sound basis as its laboratory work. To do this we need land and buildings and money for the support of the school.

The trustees of the university are asking the legislature for the sum of \$500,000 to acquire an adequate site for its clinical plant and to begin the erection of suitable buildings.

I am asking you to do what you can to help persuade the people of the state to ask the legislature to grant us this money.

The members of the legislature are favorably inclined, as they have shown over and over again by their votes, but they naturally wish to know what their constituents think about the policy of developing a strong state medical school. It is up to you and the like of you to furnish this evidence.

Will you not take the trouble to see your senator and representatives personally and present this matter as strongly as you can? If you cannot see them personally, will you not write to them and will you not use your influence to have your county medical society write a letter to the Governor of the State, Honorable Frank O. Lowden, Springfield, Illinois, urging upon him the importance of this subject?

If the state school can get its clinical work in the same relative condition in which its laboratory work is now, I believe it will be in a condition to serve the interests of the medical profession very efficiently, and certainly it will be of the greatest value to every citizen of the state whose health and the health of whose family depends upon the adequate development of medical training and medical research.

Faithfully yours,

EDMUND J. JAMES.

CLINICAL MATERIAL WANTED.

The Clinic Committee for the Bloomington meeting wishes clinical material. The following letter is from the committee and it is desirable that the members co-operate:

Eye, Ear, Nose and Throat Section,

ILLINOIS STATE MEDICAL SOCIETY,

May 8, 9 and 10, 1917.

Dear Doctor: As you well know, the State Medical Society meets in Bloomington, May 8-9-10. The Clinic Committee is very anxious to have a large and profitable Eye, Ear, Nose and Throat clinic, and in order to do so we are obliged to call upon the profession of the State to furnish the material.

The following are some of the cases we wish to receive for operation: Chronic mastoids, nasal deformities, sinusitis, tonsils and adenoids, polypi, eye muscles, lids, glaucoma, cataract, tear sac, cleft palate, hair lips and any interesting or unusual cases that you think might add interest to the clinic. We are anxious to make this one of the best and most profitable clinics ever held at our State meetings and we can only realize our ambition with your co-operation.

The clinic cases should all be in the hospital not later than the evening of the 7th. The eye and ear cases will go to the Brokaw Hospital, and the nose, throat and sinus cases to the St. Joseph Hospital.

If you send us any cases, it will facilitate our work greatly if you can let us know by May 1 what and how many you are sending.

The only expense to the patient will be one dollar a day while at the hospital.

These cases will be operated by competent men and will be given the very best of care.

Hoping to have your assistance in making our clinic a success, I am,

Yours fraternally,

Will H. Gardner, M. D.,
Chairman Clinic Committee,
Bloomington, Ill.

ATTENTION, P. & S., U. OF I.

An alumni banquet of the P. & S. medical department of the University of Illinois, is called for Wednesday evening, May 9th, at the Illinois Hotel, at Bloomington, during the coming session of the Illinois State Medical Society.

Those who attended last year's banquet at Champaign need no urging to attend. Good fellowship prevailed, a good time was had, and constructive work was done.

This year's banquet is going to eclipse all previous ones. President James has promised to be present, besides other good friends of the faculty and the alumni.

The speeches which will be short will be followed by musical and other entertainment.

The class of 1892 will have a special table for their 25th anniversary re-union, while special reservations are also made for the classes of '97, '02, '07, and '12. Which class will make most noise remains to be seen.

As a big attendance is expected, make your reservation early, as otherwise you may get left.

If you are not a dead one, get over to Bloomington in May and mix.

Fraternally yours,

MARTIN M. RITTER,
Chairman, Banquet Committee,
25 East Washington Street,
Chicago, Ill.

NOTICE TO COUNTY SECRETARIES.

Will the secretaries of all the County Societies, who have not previously reported the names of the officers of their society for this year, report them to Dr. W. H. Gilmore, Mount Vernon, Secretary State Society, at once, in order that he may have his records correct, and also to this office, so that we may have the official roster of County Societies up-to-date for publication.

Not infrequently some member thinks he is protected by the medical defense fund when he is not, because of the laxity of his County Secretary. All the County Secretaries should be prompt in reporting to the State Secretary election of officers, payment of dues by members, and other official matters of their Society.

TRI-STATE DISTRICT MEDICAL SOCIETY

The territory covered by the Tri-State District Medical Society this year is composed of sixteen counties in Wisconsin, fifteen in Iowa and fifteen in Illinois. They are as follows:

Wisconsin—Dane, Green, LaFayette, Rock, Iowa, Grant, Columbia, Crawford, Dodge, Jefferson, Richland, Sauk, Walworth, Waukesha, Washington and Vernon.

Iowa—Dubuque, Cedar, Blackhawk, Muscatine, Clinton, Scott, Buchanan, Jones, Fayette, Linn, Bremer, Jackson, Johnson, Delaware and Clayton.

Illinois—Boone, Bureau, Carroll, DeKalb, Henry, Jo Daviess, Kane, La Salle, Lee, McHenry, Ogle, Rock Island, Stephenson, Whiteside and Winnebago.

The honorary members of the Advisory Board are the presidents and secretaries of the three state medical societies and the editors of the state journals. The active members are the councilors, presidents and secretaries of the county societies within the districts of the organization.

The annual scientific and clinical meeting will be held this year at Dubuque, Iowa. The date has not yet been set.

Last year's meeting was held at Freeport and consisted of nine counties in Wisconsin, nine in Illinois and five in Iowa. On account of the large attendance and the enthusiasm displayed at this meeting, it was decided to change the name from "Confederation of County Medical Societies" to "Tri-State District Medical Society" and enlarge the territory to a considerable extent.

This organization is primarily a confederation of county medical societies banded together for a true fraternal and professional spirit as well as scientific and research work. We feel that this association is destined to become one of the finest medical organizations in the middle west.

DR. W. B. PECK, *President*,
Freeport, Ill.

DR. N. C. PHILLIPS, *Secretary*.
Freeport, Ill.

NATIONAL INVESTIGATION BUREAU

The woes of the widow who, left to assume unaccustomed responsibilities, finds her affairs in the hands of unprincipled lawyers, have been many times impressed upon insurance men. Many times there arise legitimate controversies over the meaning of policies, particularly of accident insurance, as applied to the particular circumstances surrounding the death of the insured, and such litigation is invariably expensive to the widow. The adjustment of such cases, in fact of all contested cases, without recourse to litigation unless absolutely necessary, is the basis of the work of the National Investigation Bureau, Inc., of Baltimore, of which Dr. W. E. Magruder is president and medical director. Since the majority of such contests hinge around medical questions the bureau has arranged for the advice and assistance of some of the foremost medical, surgical and pathological men in the

country. The bureau will also have the services of some of the best lawyers, after all other methods of adjustment have failed. The high regard in which Dr. Magruder is held is evidenced by the action of a number of insurance men, who have voluntarily directed that their insurance policies be handled, after their death, by this bureau. Others, preferring not to risk having their possible claim for accidental death fall in the hands of shyster lawyers or zealous adjusters, have done likewise. Thus they have guarded against the possibility of having the least favorable construction placed upon policy provisions which are obscurely worded. In view of his eleven years of experience in the business of adjusting, Dr. Magruder's recent announcement that he will hereafter devote himself entirely to adjusting for the insured is a highly important and interesting one, especially to state insurance departments, whose services are being asked in cases of this kind on increasingly numerous occasions.—*From Weekly Underwriter, New York, December 16, 1916.*

THE MEDICAL OFFICERS' RESERVE CORPS

The Medical Officers' Reserve Corps was organized under the National Defense Act of June 3, 1916, for the purpose of securing a reserve of officers available as temporary officers in the regular army in time of war.

This service would be in the nature of hospital practice in a large city with the addition of the medico-military problems to be encountered in army life. Arrangements have been made by the War Department to provide for the instruction of all officers of the Medical Officers Reserve Corps in their purely military duties. This instruction will consist of lectures and correspondence courses, and at some time during the summer months special military instruction of from two to four weeks. This latter will be held at the regular summer training camps.

All physicians in good standing and between the ages of twenty-one and forty-five are eligible for commissions in this corps. All persons desiring commissions in the Medical Officers Reserve Corps will write to the Surgeon-General U. S. Army, Washington, requesting permission to appear before a board for the purpose of being examined for a commission in this corps. A reply will be received from the Surgeon-General directing the applicant to appear at a certain time and place to be examined mentally and physically for entrance into the corps. The physical examination is very thorough, and no person with pathological defects will be considered. The mental examination is not severe, and physicians in good standing in their communities will not find any difficulty in passing the same. After this examination has been successfully completed the applicant will be commissioned a first lieutenant in the Medical Officers' Reserve Corps. After five years the reserve officer may be recommissioned in the same or the next higher grade after taking another examination. A reserve officer can be promoted to the rank of major after a specified length of service in the

reserve and after passing the prescribed examination. In time of war reserve officers called into the service will take rank according to their commissions and will be entitled to pay and allowances of corresponding grades of the regular medical corps. No reserve officer will be called into active service in time of peace without his consent, but if he does serve, will receive the pay and allowances of a first lieutenant of the regular corps.

Correspondence

WAR DEPARTMENT,

OFFICE OF SURGEON GENERAL, WASHINGTON.

March 3, 1917.

To the Editor: Should the country ever be engaged in war, the Medical Department of the Army in calling Reserve officers to the colors, wishes to cause as little hardship and sacrifice to the Reserve medical officers as may be consistent with the needs of the country. With this end in view, the Department desires that you bring to the attention of the profession at large the necessity of the city, county and state medical societies organizing for the purpose of taking care of the practices of the officers of the Reserve who respond to a call for service. In England this plan has proven of great benefit. The idea of the Department is that the profession should organize upon a similar basis.

For example, should Dr. Jones be called to the colors, the local medical society, through its members, would take care of his practice during his absence. Upon relief from active duty his practice would be returned to him intact. Such a plan will cause no unnecessary hardship upon the officer responding to a call for service; while the absence of such plan would penalize the officer who gives his service to the country in a crisis. The Department appeals to the patriotism of the profession to protect the interest of those of the profession who may be called to duty in war.

For the Surgeon General.

Sincerely,

Robt. E. Noble,

Major, Medical Corps, U. S. Army.

DO YOU KNOW THAT

A little cough often ends in a large coffin?

Bodily vigor protects against colds?

Careless sneezing, coughing, spitting spread colds?

* Open air exercise cures colds?

Colds sometimes get well in spite of the excessive use of alcoholic beverages?

Overheated, air-tight rooms beget colds?

Neglected colds often forerun pneumonia?

Persistent, oft repeated colds, indicate bodily weakness?

Society Proceedings

COOK COUNTY

Joint Meeting of the Chicago Medical Society and the Chicago Urological Society, February 21, 1917.
The President, Dr. A. Augustus O'Neill, in the Chair.

OPERATIVE TECHNIC OF SUPRAPUBIC PROSTATECTOMY.

Dr. Irvin S. Koll said that the technic suggested by Kolischer several years ago has given him as nearly perfect results as he feels it is possible to obtain. The preoperative condition of the patient, especially the condition of the renal function, must always be considered. One should know how much urine is excreted in the 24 hours, the total amount of urea, and whether there are albumin and casts. The cardiovascular system should also be investigated as a guide in the general care of the patient and in the selection of an anesthetic. The author considers the two-step operation the one of choice, preliminary cystostomy being done ten days to three weeks before the gland is removed. He mentioned three axioms in regard to peeling out the gland: first, see what you are doing; second, do not tear adhesions or fascial bands; third, secure careful and non-mechanical hemostasis. The incision should be generous, as a good view of the interior of the bladder is essential. The incision should be made into the most prominent part of the projecting gland with a knife, not with the finger nail.

PERINEAL PROSTATECTOMY

Dr. Weller Van Hook described a method of performing perineal prostatectomy which he originated in 1903. The method is: place the patient in the exaggerated lithotomy position, with the hips elevated about one and a half inches, and with a grooved sound in the bladder. Make a one-inch transverse incision one-half inch in front of the anal margin, carrying the wound through the centrum tendineum. Separate the muscles in the median line with the finger tip and palpate the sound as it traverses the membranous urethra. Open the latter by a longitudinal incision one inch long, pass the finger into the bladder, remov-

ing the sound. Explore the bladder. Remove the finger from the urethra and penetrate the prostatic lateral lobes with the finger tip, enucleating the masses of the gland. Pack each wound in the prostate with a strip of gauze. Press a half-inch rubber tube into the bladder and suture it to the skin. Pass very large sounds about one week later. The operation requires from 4 to 20 minutes under gas anesthesia. It gives fullest drainage at once; it does no serious damage to the perineum; it does no injury to the bladder; it gives rapid healing, with minimum liability to fistula and to loss of function. The author prefers his results by this method to those obtained by the suprapubic route.

RATIONAL OPERATION FOR PROSTATIC ABSCESS.

Dr. J. S. Eisenstaedt cited two cases of prostatic abscess, one of which recurred after a period of six years, and which found exit through the perineum both times. He emphasized the point that while prostatic abscess is usually dependent upon infection with the gonococcus, subsequent to a posterior urethritis, certain cases occur in which the mode of entrance of the infecting organism, usually the staphylococcus, cannot be determined and still other cases exist not dependent upon inflammation or infection in the genito-urinary tract, but consequent upon remote infections, as furunculosis and carbuncle. Dr. Eisenstaedt recommended as a surgical procedure, with the fewest drawbacks, a modification of the incision recommended by Dittel, Thompson and Zucherkanl. The advantage of the operation is the preservation of the central tendon of the perineum, which structure is cut across in the operations suggested by other authors.

Scientific Meeting, February 28, 1917.

Dr. Arthur W. Stillians read a paper on (a) THE DIAGNOSTIC VALUE OF THE SPIROCHETAE, and (b) THE CLINICAL VALUE OF THE LUTIN TEST. The chief value of the examination for spirochete lies in the clinching by this means of the diagnosis of the chancre. Since the discovery of the organism by Schaudinn in 1905, it has not been necessary to wait for the secondary symptoms to make the diagnosis absolutely certain before subjecting the patient to the necessary treatment.

As to the clinical value of the luetin test, Dr. Stillians said that since 1911, when Noguchi demonstrated before the Chicago Medical Society his cultures of the spirochetes pallida and the cutaneous reaction resulting from the intradermal injection of the emulsion of the killed spirochete, reports have come from all over the world corroborating the diagnostic efficiency of the test. In a series of 344 cases which he made and reported in collaboration with Dr. W. A. Pusey, they obtained only 20 per cent. positive reactions in 104 secondary cases, 18 per cent. positive in 33 latent cases, and none in 7 cases in the primary stage.

In a paper on the NON-SPECIFIC FACTOR IN

THE LUTIN REACTION Dr. J. H. Stokes stated that his own interest in the non-specificity of the reaction was aroused by finding that its clinical course could be imitated in normal persons not taking iodides, after they had been rendered sensitive by the intradermal injection of emulsions of homologous proteins (emulsions of skin) by using intradermally simply a 0.5 per cent, suspension of agar, one of the supposed inactive ingredients of luetin in physiological saline solution. The action of agar, in contact with serum, was apparently overlooked by Noguchi and other workers with luetin, but is known through recent work in the colloidal chemistry of anaphylactic phenomena to be that of an absorbent. Its action liberates an intensely toxic produce, or anaphylatoxine, whose source, whether by proteolysis or otherwise, is the serum itself.

CLINICAL VALUE OF THE BLOOD WASSERMANN REACTION.

Dr. Louis E. Schmidt said that an authoritative estimate of the value of the blood Wassermann reaction should comprise: 1. The stage of syphilis. 2. The clinical manifestations. 3. Whether or not treated and how treated. 4. The character of the reaction. 5. Any information which might be of value. He believes the value of the blood Wassermann reaction in secondary syphilis to be almost 100 per cent., but that a certain amount of treatment in individual cases lessens this. All authorities practically agree that in secondary syphilis the blood Wassermann reaction in treated and untreated cases would be between 25 and 100 per cent. In congenital syphilis, untreated statistics show 97 to 100 per cent. blood Wassermann reaction. It is certainly over 90 per cent. in the infantile type of hereditary syphilis, at least in untreated cases.

SALVARSAN AND NEOSALVARSAN THERAPY.

Dr. Oliver S. Ormsby reviewed the history of salvarsan therapy from its introduction to date. In a review of many hundreds of injections personally observed, together with those of others, it was apparent that different lots of salvarsan vary in degrees of toxicity. Late reactions are due to the deleterious action of the drug itself on the liver, kidneys, and the central nervous system. A review of the work in all the large clinics of the world show that salvarsan and mercury are employed by most in courses, each course ranging from 4 to 8 injections of salvarsan given at intervals of from 7 to 14 days, together with from 10 to 20 injections of mercury; the number of the courses and the size of dose depending upon sex, general condition of the patient, and the stage of the disease.

CHANGES IN THE SPINAL FLUID AND INTRASPINAL THERAPY ON SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

Dr. George W. Hall pointed out that the different methods of intraspinal medication, as employed during

the past two or three years, are: (1) The Swift-Ellis method of injecting salvarsanized serum into the spinal canal; (2) Ogilvie's modification of this method by adding salvarsan to the patient's serum; (3) the use of mercurialized serum by adding mercury to the patient's serum; (4) the intraspinal injection of mercury, using the patient's serum as a vehicle; (5) the intraspinal injection of neosalvarsan, using the patient's spinal fluid as a vehicle. Swift states in the Swift-Ellis method, 12 to 20 cc. of serum represents about 0.12 to 0.2 mg. of salvarsan. By the use of the last method mentioned, 1 to 3 mg. have been employed with safety. Favorable clinical reports have been recorded by all of these methods, although uniform reports have not been made concerning the treatment of general paresis.

THE CURE OF SYPHILIS.

Dr. William T. Belfield said a revision of the current treatment of syphilis along the following lines seemed desirable: 1. Let us begin with the frank confession that we have as yet no means for determining when a patient is cured. 2. If we admit that at the end of 2 or 3 years treatment we are still unable to distinguish the cured from the apparently cured, two courses are open to us, the easy and usual custom is to tell them all that they are cured. The other course open when our patient is apparently cured is to explain to him frankly that we cannot promise permanent freedom from the symptoms; that his present immunity may be transitory; that if he would "play safe" he should renew this immunity by repeating the medication at prescribed intervals.

Scientific Meeting, March 7, 1917.

TUBERCULOSIS NIGHT

Dr. Frederick Cleveland Test read a paper on "The Crippled Child." From available statistics anterior poliomyelitis seems to have furnished some 10 per cent. of the deformities of childhood in Chicago, and a census now under way among the crippled children attending Chicago schools indicates that fully one-third of them owe their deformity to this disease, indicating that mental disturbances do not keep pace with the muscular, as is the case with the paralyses of cerebral origin, which furnish 2 or 3 per cent. of all cases of deformity.

Dr. Charles P. Caldwell spoke of the tuberculosis sanitarium. At the sanitarium there are about 728 patients; it is divided into two parts—the infirmary and cottages. All patients are placed in the infirmary for a certain length of time, according to the progress of their disease, and when they are able to resume some activity are placed in the cottages and go to the public service building for their meals, being returned to the infirmary if they do not do well.

Dr. John Dill Robertson spoke on "The City Problem." The more he studied tuberculosis, and the more he saw of it, the more he was inclined to believe it is a disease of childhood, and the sad part of the work in Chicago was the fact they could not remove the child from the parent who was infecting it.

Scientific Meeting, March 14, 1917.

In a paper on "The Tonsil as a Portal of Entry in Tuberculosis of the Cervical Glands" Dr. Walter B. Metcalf considered only the palatine tonsil and gave its average size in the adult as about 20 mm. in height, 15 mm. in width and 12 mm. in thickness. He reviewed the results obtained by 30 different investigators, showing that the tonsils frequently contain tubercle bacilli, that the tubercle bacilli may penetrate the tonsillar membrane without leaving any mark, and that in a very large percentage of cases of tuberculous lymph adenitis the tonsils are also infected.

Dr. John A. Robison spoke on "A Consideration of the Administration Code of Illinois as Relating to Public Health and the Practice of Medicine." The Administrative Code entirely divorced the examination and licensing of professions, trades and occupations, that function now being placed under the control of the Department of Registration and Education. It will place the administration of all health functions in the hands of one man, the Director of Public Health, but he will be assisted by a board of public health advisers consisting of five persons.

J. V. FOWLER, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held Monday, October 16, 1916, with the President, Dr. William E. Gamble, in the Chair.

RETINITIS PROLIFERANS.

Dr. E. K. Findlay reported a case of retinitis proliferans and exhibited the patient, demonstrating the progress within one year.

DISCUSSION.

Dr. Harry S. Gradle asked Dr. Findlay whether, at any time, he had noticed the presence of hemorrhages either into the retina or vitreous.

Dr. Findlay replied that the hemorrhages were only in the retina; that large areas of hemorrhages were seen around the disc. There were also hemorrhagic masses in the vitreous.

Dr. Gradle thought the case should be classed as one of exudative retinitis rather than retinitis proliferans. He thought it was Koch who pointed out that retinitis proliferans is due to the proliferation of the glia, whereas, in the exudative form there is connective tissue and organized exudate. He believed it was Nogouchi who claimed that this form of exudative retinitis is either the result of hemorrhages into the retina or the vitreous impinges upon the disc and from the disc there arise new strands of connective tissue in the retina itself; consequently, he thought the case reported by Dr. Findlay should be classed as exudative retinitis rather than retinitis proliferans.

Dr. Findlay said he preferred the term retinitis hemorrhagica-hyperplastica, which covers quite the same thing as Dr. Gradle had referred to. The condition was entirely due to hemorrhages. There was a proliferation of Mueller's fibrous cell and the formation of connective tissue.

The interest in the case to him was largely on account of the difficulty in finding any causal factor in a man in such a healthy condition as the patient was.

Dr. William E. Gamble had been observing this case in the last year and his judgment is that the connective tissue in the eye was not the result of hemorrhages. There was too much connective tissue and too little hemorrhage, and then it did not seem to spread from the hemorrhagic areas or exudate plexuses.

REPORT OF A CASE OF JUVENILE TABOPARESIS WITH OPTIC ATROPHY, TREATED BY INJECTIONS OF MERCURY INTO THE LATERAL VENTRICLE.

Dr. George F. Suker reported this case: The patient is Miss P. F., aged 16, who contracted lues from her father while a baby but a few months old. Father contracted an active lues a short time prior. Mother is free as a Wassermann and spinal fluid were negative.

The girl grew up, having had the usual sicknesses of childhood, and apparently gave no symptoms of lues to speak of, at least, the mother said the child was well until about the age of 15. Has menstruated but twice. Has a myopia of 4 diopters in each eye. Is rather small for her age, though both parents are tall. Gives no evidences of any pituitary disturbances; x-ray plates negative.

At the age of 15 she began losing sight rapidly, became nervous and irritable, forgetful and showed difficulty in walking; very dizzy, and had very severe headaches and more or less lancinating pains.

A complete neurological examination by Dr. L. Harrison Mettler proved her to be a juvenile taboparetic, giving all the classical symptoms.

The eye findings are as follows: 1. Maximunly dilated irides. 2. Moderate degree of divergent strabismus. 3. Complete optic atrophy in left eye (primary). 4. Rapidly advancing optic atrophy in right (primary). 5. Four diopters myopia in each eye; this gave 12/60 vision in right eye. 6. The field for form and color, just prior to operation, is as per charts.

On May 29, the right lateral ventricle was tapped and 10 cc. of fluid slowly withdrawn; 5 cc. of this with 1/100 gr. of bichloride of mercury were slowly reinjected. (Luer syringe used.)

No marked reaction followed this injection; operation under general anesthetic.

After 48 hours the headaches disappeared and have not returned up to date. The dizziness rapidly improved. General conditions satisfactory. Second injection (under local anesthesia ten days later—this time 1/75 gr. mercury in 1/2 of the amount of ventricular fluid (8 cc.) withdrawn as reinjected. Reaction rather pronounced within 24 hours, *i.e.*, headache and dizziness; this lasted but for 12 hours.

Third injection two weeks after the second and this time 1/50 gr. mercury was injected. Reaction more pronounced than after second, but the continuous application of an ice bag to the head allayed all symptoms.

Fourth injection ten days after third and 1/25 gr. mercury was used. Reaction prompt and rather severe, but controlled as before.

Up to date, the vision in right eye is the same (12/60) and the field larger (see chart) and more regular than before injections were made.

The patient is greatly improved in every respect and after five months vision has not decreased any, though before injections were made vision rapidly fell to 12/60.

It must also be stated that inunctions of mercury

have been consistently used in large doses since the last injection.

One cannot expect a restoration of nerve fibers in an optic atrophy, but if the atrophic process can be checked, some vision can be saved, much has been accomplished.

One interesting feature in the case is the dilatation of the irides instead of an Argyll-Robertson pupil. The mother said the pupils were large for a number of years before she began to complain of headaches and dizziness, etc.

Following the lateral ventricle injection, the reactions sometimes are very pronounced, within 12 to 24 hours after, necessitating a spinal puncture and the withdrawal of about 10-15 cc. of the fluid. The reactions may manifest themselves as: terrific headaches, nausea, extreme dizziness or more or less stupor. If the application of the ice cap to the head does not mitigate the symptoms promptly, then resort to spinal puncture.

DISCUSSION.

Dr. Francis Lane asked Dr. Suker whether he regarded this as a primary ascending or descending atrophy of the optic nerve.

Dr. Suker said the question of whether it was a primary ascending or descending atrophy of the optic nerve was very pertinent. Speaking of primary optic atrophy, we have it starting in the retina and ascending. If we accept the presence of the spirochete, although not yet demonstrated, as being present in the nerve fibers posterior to the optic nerve itself, then we must look upon the spirochete as setting up a local low-grade inflammatory condition, and it might be a descending instead of an ascending optic atrophy.

There was no doubt in his mind that the direct injection of mercurial preparations or salvarsan, or neosalvarsan had a definite field of value. This was not the only case he had had under his care. He recalled three cases in which the patients did not lose any more vision than at the time he first observed them. The oldest one was practically nine months. In nine months optic atrophy usually showed a marked advance, and if one could check it for nine months it might be checked for a much longer period.

TUBERCULOSIS AS A CAUSE OF IRITIS IN EIGHT CASES.

Drs. E. V. L. Brown and Ernest E. Irons stated that these cases were encountered during an intensive study of the etiology of 100 cases of iritis (J. A. M. A., June 10, 1916).

In addition to these eight cases, clinical evidence of the presence of tuberculosis, either inactive or active, was found in 26 others of the 100 cases. This evidence varied in extent and nature in the several cases; in 24 a rise of fever of more than one degree, either alone or accompanied by local and general signs of tuberculin reaction, followed the injection of tuberculin; in one there were signs of cavity formation and infiltration, together with Roentgenographic findings and an old history of tubercle bacilli in the sputum; another patient died later of pulmonary tuberculosis and diabetes. In all these 26 cases careful studies showed other infectious processes which appeared to the writers to stand in closer etiologic relation with the iritis than did the tuberculous infection. They warn strongly against basing a diagnosis of tuberculosis on incomplete clinical information or on placing great reliance on the presence or absence of a tuberculin reaction unsupported

by collateral evidences. They pointed out that in some of the 100 cases there were several infections occurring together, such as tuberculosis, syphilis, gonococcal or other pyogenic infections, in which careful investigation failed to demonstrate to their satisfaction which one of the possible causes was responsible for the disease in the eye. On the theory of probabilities, one or more of these cases may have been due to tuberculosis, but should not be included with the eight cases described, in which the evidence seemed fairly clear cut.

Case 29. Machinist, aged 23. Active plastic iritis; active pulmonary tuberculosis. Roughness of breath sounds; dullness and fine rales over the upper lobe of the left lung both anteriorly and posteriorly; hemoptysis; tubercle bacilli found in the sputum. Lues denied. Gonorrhea three years ago.

Case 23. Housewife, aged 35; recurrent plastic iridocyclitis (fourth attack). Inactive pulmonary tuberculosis. Harsh right apex; relative slight dullness; x-ray findings "similar to pulmonary tuberculosis"; temperature of 100 degrees 20 hours after subcutaneous injection of 3 milligrams of O. T.; repeated phlyctenula-like effluorescences about the limbus during tuberculin (BE) treatment. Repeated Wassermann and Neisserian complement fixation tests negative. Teeth, tonsils and sinuses negative.

Case 30. J. R., laborer, aged 24. Iritis peracta, secondary cataract, inactive pulmonary tuberculosis. Breadth sounds harsh and prolonged over the right apex, and left subscapular region; x-rays "quite characteristic of pulmonary tuberculosis"; ten weeks persistently subnormal temperature; 5 mg. O.T. negative. Teeth, tonsils, sinuses, blood, Wassermann and Neisserian tests negative.

Case 70. D. S., laborer, aged 38; recurrent active plastic iridocyclitis (and hemorrhagic retinitis and old choroiditis). Present attack incited 9 days ago by trauma—eye struck by a small piece of iron. Inactive pulmonary tuberculosis. Voice sounds increased and piping rales heard posteriorly in the right chest at the apex of the lower lobe; temperature of 103 degrees thirty hours after 5 mg. O. T. Teeth, tonsils and sinuses negative. Wassermann and Neisserian tests negative. (History of an old gonorrhea.)

Case 71. Nurse, aged 38. Recurrent "serous" iridocyclitis with corneal lesions suggesting phlyctenular disease and old choroiditis. Inactive pulmonary tuberculosis. Occasionally rale heard at right apex and a slight rise (99.4 degrees) after 3 mg. O.T. twenty months later; "daily rise in temperature to 99.4 degrees enlarged bronchial glands and evidences of inactive lesions at both apices." (Dr. H. H. Stark, El Paso.) Teeth, tonsils, sinuses and blood, Wassermann and Neisserian tests negative.

Case 81. School girl, aged 18; chronic "serous" iridocyclitis, with old anterior choroiditis. Inactive pulmonary tuberculosis. Right apex breath and voice sounds decreased; bronchial breathing increased posteriorly down to mid-scapular region on the right side; x-rays show fan-like radiation shadows, more pronounced in the upper right lung, with increased

shadows at each hilus; loss of 13/15 pounds in weight; a persistent daily rise in temperature of 5 to 1.5 degrees 3 mg. O.T.; gave 99.8 degrees at the 16th hour. Tonsils, teeth, sinuses and Wassermann and Neisserian tests negative.

Case 40. Male, aged 30; chronic recurrent plastic iridocyclitis, with old choroiditis. Repeated examination of the lungs showed no demonstrable disease. Well-marked general and temperature reaction (101 degrees) to 3 mg. O.T. on the second day. Definite healing of the uveitis following tuberculin (BE.) treatment. Teeth, tonsils, sinuses, Neisserian and Wassermann blood tests negative.

Case 52. Locomotive fireman, aged 29. Chronic nodular iridocyclitis, incited by strongly irritating medicine used in the eye by mistake. Repeated examination of the lungs showed no demonstrable disease; 0.5 mg. O.T. gave 100.8 degrees at the 48th hour and 2 mg. gave 100 degrees at the 24th hour. Teeth, tonsils, sinuses and Wassermann and Neisserian blood tests negative.

DISCUSSION.

Dr. George F. Suker said it was a question whether or not one was able to demonstrate the presence of tubercle bacilli either in the iris itself, or whether one looked upon the iritis as being caused by the presence of the tubercle bacillus, or by a toxin elaborated by the presence of the tubercle bacillus elsewhere in the body, being practically a transferred infection. If this was the case, not only the local condition itself must be fully looked into, but the general condition of the patient needed more attention.

Dr. Brown stated that as to whether the iritis was of a toxic or bacterial nature, he did not think there was any particular consensus of opinion, and there was no particular evidence of any value to show whether the iris might not contain tubercle bacilli, but men working in the bacteriological departments seemed to emphasize the presence of organisms or the toxins of organisms.

Dr. William H. Wilder asked whether traumatism to the eye in a tuberculous subject would have the tendency to cause a lesion that might ultimately become tuberculous.

Dr. Brown replied that three cases were of that type. The 8 cases reported constituted a small percentage of 100 cases. They got tubercular reactions in something like 40 of the cases.

Dr. Willis O. Nance said that in the etiology of 100 cases he had noticed in over one-third of them there were dental or tonsillar troubles, and about one-quarter were due to syphilis. He would like the essayist to say something further about this.

Dr. Brown said that 98 out of 100 cases they had Wassermann's made both at the Presbyterian and Cook County hospitals and where the reports conflicted they were done over again. They eventually got the men in the two laboratories to agree on the same technic. Of 17 cases examined 9 of them had positive Wassermann's, and 8 of them had positive gonococcal complement fixations. A lot of them had tuberculous infections; many of them had 3 to 5 infections.

Dr. Nance said he was interested in the dental and tonsillar aspect of these cases and would like to know more about them.

Dr. Brown said the dental cases were based largely on alveolar abscesses, and not particularly upon pyorrhea. Some therapeutic observations were made in connection with the diagnostic points. Attention was given to the dental aspect of these cases by Dr. Potts.

In some cases the ciliary injection disappeared and a few days later returned with secondary glaucoma, and tension dropped very materially as the result of extracting teeth. The tonsillar cases were seen and attended to by Drs. Shambaugh, Friedberg and Sonnonschein.

Dr. Francis Lane recalled a very difficult case of tuber-

culous irido-cyclitis following a non-perforating injury of the eye which he and Dr. Dodd reported to the American Medical Association in 1911. In this case a typical giant cell growth was found in the ciliary body in which typical tubercle bacilli were found stained in the tissue. Five hundred sections were made of the anterior segment from which 30 or 40 showed typical miliary tuberculous areas.

Dr. Robert Blue asked Dr. Brown whether he had encountered any cases of rheumatic iritis, or whether these were included under the dental or some other heading?

Dr. Brown said that rheumatism was not considered a very illuminating or prolific cause of iritis. Rheumatic iritis was given a hard blow by Dr. de Schweinitz in 1911, and in all these cases there was some form of infection.

THE USE OF EYES OF KITTENS IN OPHTHALMIC OPERATIVE TEACHING.

Dr. William A. Fisher stated that pigs and rabbits' eyes had been mentioned and could be obtained readily in large quantities for teaching purposes, but the former did not offer much to the student, because, as obtained commercially, they were delivered enucleated, thus precluding practice upon the muscles, and since they had such a large and thick cornea they were quite impractical for corneal work. The iris was so thick that operations upon it were likewise very unsatisfactory, but with all these objections the eye of the pig was universally used for teaching operations upon the eyeball.

For work upon the eyeball proper, the eyes of kittens were far superior for all purposes to all others mentioned, and when once used they would never be discarded. As in the case of other animals, the kittens should be killed before beginning work, after having been dusted lightly with powdered naphthalene to dispose of any vermin present. The killing might be most conveniently and cheaply done by the injection of one-half grain of strychnin sulphate intrapleurally.

Any student could, with one hundred kittens, do as much operative work as the busiest oculist in many years. One hundred kittens (two hundred eyes), would furnish material for four hundred muscle operations, two hundred enucleations, two hundred iridectomies, and two hundred cataract extractions, making in all one thousand operations. If the student used this or twice this amount of material, he could not fail to bring to his operating room an experience and confidence that could be secured in no other way.

The author drew the following conclusion: 1. Students could not become competent to do surgical operations upon the eye by watching others. 2. The eyes of four-weeks'-old kittens were better for teaching ophthalmic operations than were those of other animals. 3. The material was not difficult to obtain. 4. Any student who had prepared himself for ophthalmology could get an operative technic in this manner that was not equalled by any other.

DETACHMENT OF THE RETINA.

Dr. Hughes reported a case of detachment of the retina. The patient was a man, 40 years of age, whom he saw for the first time a week ago. When first seen, without dilatation of the pupil, one could see a grayish mass protruding through in the line of pigment, and with dilatation of the pupil one could ob-

serve the mass extending well out. With vision about the temporal side of the retina he could distinguish things fairly well. The speaker did not attempt to get distinct acuity of vision, but patient complained of limitation of vision.

The history was of no particular importance. Two weeks before this time patient had an accident which resulted in a foreign body penetrating the eye, he having been hit in the eye by a hot piece of iron flying from a drill. He had no subjective sensation referable to the eye, and complained of no loss of vision up to that time. His general health was fairly good. Patient is of medium size and sallow in color. On examination of the eye one can see where the detachment of the retina begins around the macula, extending nearly over to the disc and becoming elevated about 70 diopters.

He would like to know from the members the true nature of the case.

Dr. William A. Fisher considered the case one of sarcoma of the choroid, and if it were his case he would explain to the man that he had a growth of some kind in his eye; that he would cocaine the eye and draw off the fluid, and if fluid could not be withdrawn he would not hesitate to enucleate the eye.

CHICAGO ROENTGEN SOCIETY.

The regular monthly meeting was held at the Graduate School of Medicine, 25 E. Washington St., February 9, 1917.

The first number on the program consisted of the presentation of interesting case reports with slides and plates.

Dr. Emil Beck presented a case of abdominal pregnancy.

Dr. Case showed slides of a case of carcinoma of sigmoid in which a previous examination was done by another Roentgenologist who stated all the trouble was in the right lower quadrant.

Mr. Montiford Morrison spoke next on experiments now being conducted by A. W. Hull on the "X-Ray Spectrum of Tungsten." These investigations intend to determine the exact nature of X-Radiation.

Dr. Emil G. Beck concluded the evening program by a paper on "Differential Diagnosis of Bone Lesions After Healing Has Taken Place," an abstract of which is appended.

DIFFERENTIAL DIAGNOSIS OF BONE LESIONS AFTER HEALING HAS TAKEN PLACE.

Dr. Beck illustrated by means of stereo-roentgenograms typical changes which take place in bone during the disease and after the disease has healed out. The stereoscopic method of diagnosis of these post-tubercular, post-syphilitic, and post-typhoid lesions of bone shows in striking contrast the lesions of acute or active disease. By this method he can obviate or eliminate those cases of bone lesions which have healed out and leave characteristic marks in the bone and tissues surrounding the bone which give positive proof that the disease has healed out and nothing more is to be done.

He compares it to the scar tissue in soft structures, such as the post-tubercular scars in the lung.

Since he is preparing a very exhaustive paper on this subject, a detailed description is omitted at this time.

JAMES T. CASE, President.

M. J. HUBENY, Secretary.

IROQUOIS-FORD MEDICAL SOCIETY.

Paxton, Ill., March 7, 1917.

The regular quarterly meeting of the Iroquois Ford Medical Society was held at Paxton, Ill., March 6, 1917.

Leon W. Kelso, Paxton, and Darwin Schett, Buckley, were elected to membership.

The secretary made a report on a mail vote taken by the membership upon the proposition of the advisability of dividing the society into two societies, one for each county. The vote stood 12 for and 30 against. Another vote taken in the same way upon the proposition of raising fees for visits stood 31 for and 11 against. Those present voted unanimously to make this effective at once.

S. S. Fuller resigned as secretary-treasurer, as he expects to remove to Riverside, Ill., about April 1. W. L. Cottingham, Paxton, was elected to fill the office for the remainder of the year.

A. M. Corwin, Chicago, spoke on the subject "Publicity."

O. O. Hall gave a very interesting paper on "Pneumonia."

W. R. Roberts gave a talk upon the treatment as carried out at the Modern Woodman Sanitorium of Colorado Springs, Colo.

Fifteen members and one visitor were present.

S. S. FULLER, Secretary.

MADISON COUNTY

The Madison County Medical Society met at the Moose Home in Granite City, February 2, 1917, with President Dr. J. B. Hastings in the chair; eighteen members present.

The secretary read a letter from State Secretary Gilmore, notifying the members that the date of the next state society meeting has been changed from May 15-17 to May 8, 9 and 10. The secretary was instructed to write to Gov. Lowden asking him to appoint a medical man to be the head of the proposed Department of Health.

Statement Red Cross Seals for 1916 by the secretary:

Total seals sold, 160,214, amounting to.....\$1,602.14
22½ per cent sent to state secretary.\$ 360.47
Paid to our local treasury..... 1,241.67

Total\$1,602.14 ..1,602.14
Statement received and placed on file.

Dr. Chas. G. Schmidt, of St. Jacob, presented a paper on "Pneumonia," giving in detail his experience in the treatment of this disease. The paper called out considerable discussion, led by Drs. Hamm, Schroeder,

Sutter and Robertson. In the general discussion that followed, Drs. Wahl, Hirsch, Kiser, Ferguson and others took part.

It was a very interesting session on a very timely subject.

Adjourned to meet in Collinsville on the first Friday in March.

Personals

Dr. B. M. Pugh, of Clinton, recently recovered from pneumonia.

Dr. L. E. Hartrick of Seymour, recently fractured two ribs in a fall.

Dr. O. R. Wakefield, formerly of Spring Valley, has removed to Princeton.

Dr. John J. Lence, of Jonesboro, has recently recovered from a long sickness.

Dr. Julius Grinker has been appointed on the neurologic staff of Mercy Hospital.

Dr. Frank E. Lindahl, of Homer, is returning to New Orleans to practice.

Dr. Albert R. DeCosta, Bloomington, has been appointed physician to McLane county.

Dr. Herman Berry celebrated his one hundredth birthday anniversary, March 10.

Dr. Elmer M. Smith, of Georgetown and Danville, is taking a Florida trip for health and pleasure.

Dr. J. H. Franklin, of Spring Valley, is planning the erection of a modern office building and laboratory.

Dr. and Mrs. A. B. Middleton, of Pontiac, returned from California March 1, but he still thinks there is no place like Florida in the winter.

Mrs. Albert H. Hoy, wife of Dr. Albert H. Hoy, formerly of Chicago, was drowned after the torpedoing of the Cunard Liner Laconia, recently.

Dr. Horace B. Dunn, formerly of Rockford, was ship's surgeon of the Worcestershire, an English ship which was torpedoed last month. The crew were landed safely.

Dr. John H. Long, dean of the school of pharmacy and professor of chemistry of Northwestern University, has been elected president of the Chicago Institute of Medicine.

Dr. Albert E. Mowry, of Chicago, addressed a meeting under the auspices of the Y. M. C. A., of Alton, March 11 on: "A Plain Talk on Sexual Hygiene and Venereal Diseases."

Dr. J. J. Hanmore, of Urbana, who was seriously injured in an automobile accident last November, spent the winter traveling and has returned home greatly improved in health.

Drs. Harry M. Richter and Jacob R. Buchbinder have received Red Cross medals of the third class from the German government in recognition of their services at the Base Hospital, Naumberg.

Dr. A. M. Corwin, Chicago, addressed the Iroquois-Ford Medical Society, March 6, on "The Tonsil Question" and "Publicity." He also addressed a large public gathering on "The Nose in Epidemic Colds."

Dr. J. Gordon Wilson has returned to Chicago after several months' army medical service in England and France. Dr. Wilson has been especially engaged in investigating the effects of high explosives and concussion on the ear.

Dr. Frank Billings has been compelled to resign as head of Base Hospital Unit No. 13, on account of ill health, and has recommended Dr. Arthur D. Bevan in his stead. Dr. Billings has gone to Pasadena, Cal., for two months, following his recovery from pneumonia.

Dr. C. St. Clair Drake, Springfield, secretary of the state board of health, was one of the speakers at the ninth annual meeting of the American Water Works Association at Urbana, March 13. March 14, Dr. Drake spoke before the Chicago Women's Club on "Midwifery and Infant Blindness."

News Notes

—The Peoria Public Health Nursing Association is making a house to house canvass for funds.

—St. Mary's Hospital, East St. Louis, has opened a dispensary for the care of diseases of the eye, ear, nose and throat.

—Homes for children, the so-called "baby farms" in Chicago, are placed under strict supervision by a recent ordinance.

—The Central Illinois C. C. M. & S. Club will hold its regular quarterly meeting in Peoria on Wednesday, April 18, 1917.

—The fund of \$5,300,000 for the great medical institution of the University of Chicago is practically raised—except a little change.

—The Infant Welfare Society is endeavoring to raise \$100,000 for fifty new infant welfare stations. Drs. Sadie Bay Adair and Walter H. Hoffman have charge of the movement.

—Governor Lowden has appointed Dr. C. St. Clair Drake, Director of Public Health. Dr. Drake has proven his preëminent qualifications for this responsible position by his excellent work as secretary of the State Board of Health.

—A bill introduced into the house by Representative Wm. H. H. Miller, Champaign, and in the senate by Hon. Henry N. Dunlap, proposes expenditures for the medical department of the University of Illinois amounting to \$2,000,000 during the next decade.

—A hospital to cost about \$100,000 is to be built by St. Anthony's Hospital, Rock Island, on the grounds adjoining the present infirmary. The new building will accommodate 150 patients, will be of fireproof construction, of brick with stone trimmings, and will be in conformity with the old building.

—Arrangements have been completed between Northwestern University Medical School and the Chicago Fresh Air Hospital for a four weeks' course on tuberculosis for the senior class in the medical school. Dr. Ethan A. Gray, medical superintendent of the hospital, has been appointed assistant professor in the university.

—Southern negroes, attracted by the high wages paid in the Union Stock Yards, are flocking to Chicago in large numbers. Investigators find that they work a few days, draw their pay and quit, sometimes on account of the "smell" in the yards. In many cases they live, eight or more, in a small room, in spite of the "smell."

—Major William N. Bispham, M. C., U. S. Army, delivered the first lecture in a course on military hygiene and sanitation at Northwestern University Medical School, March 19, at Rush Medical College, March 23, and at Loyola University, March 24. Two lectures each week are

to be delivered at each of the medical schools of the city.

—The Central Illinois C. C. M. & S. Club has completed arrangements for attending in a body the Illinois State Medical Society Meeting at Bloomington. This club is composed of Alumni of the Chicago College of Medicine and Surgery, and is located in Central Illinois. Headquarters will be established in the Illinois Hotel.

—Views of surgical operations and hospital work in the field hospitals in and around Saloniki were given by Surg.-Col. Alexander Primrose, professor of surgery at the University of Toronto, at the eighth annual banquet of the University of Toronto Alumni Association of Chicago, March 2. Dr. Hugh A. Cuthbertson was elected secretary-treasurer of the association.

—The criminal court is to have a psychopathic institute for which aid will be obtained from the Rockefeller Foundation. Judge Hugo Pam has been made representative of the criminal court judges on the committee to direct the work of the institution. The institution will be an extension of the Juvenile Psychopathic Institute, and will be supervised by Dr. Herman Adler.

—The council of the Chicago Medical Society on March 13 adopted a resolution stating that a shift for nurses to eight hours "would be to disrupt the efficiency of their work," and stating furthermore that nursing should not be governed by union labor regulations, but "is a special business and cannot be dictated to by laws other than those giving them the right to act as nurses."

—The eugenic marriage bills introduced in the legislature were badly defeated, in both house and senate. Such radical reforms require either a long process of public education or a sudden emergency to make their need convincing. But it is only a question of time when the rapid increase of the expense of State care of the criminal, defective and insane will compel action to reduce the supply.

—The first number of *Medicine and Surgery* is out. If the first number is a criterion for the numbers to follow we predict for it success. It has an able force of associate editors, and Dr. Philip Skrainka is its editor-in-chief. The first number is devoted entirely to surgical subjects, and presents them in a manner which would be

creditable for any journal. The Journal is published in St. Louis.

—The Illinois Public Health and Welfare Association, which was organized at a meeting of the Better Community Conference at Urbana last fall, and which will bring together all of the governmental and extra-governmental health agencies of the state, will hold its first annual meeting at Springfield on April 12 and 13.

The program which has been prepared is an excellent one and will include Governor Frank O. Lowden, Dr. W. A. Evans, Dr. W. L. Noble, Dr. C. St. Clair Drake, Dr. John Dill Robertson, Dr. L. C. Taylor, Dr. C. W. East, Miss Caroline Van Blarcom, Miss Harriet Fulmer, Dr. J. W. Pettit and a large number of other well-known physicians, sanitarians, sanitary engineers, health officers, public service nurses and social workers.

This Conference takes the place of the health officers' schools or conferences held by some of the more progressive states, but is broader in its scope, adopting the policy of the present State Board of Health in bringing closely together all official and non-official health agencies.

The officers of the Association are: Dr. George Thomas Palmer, Springfield, president; Dr. John A. Robison, Chicago, honorary president; W. J. Allen, Waukegan; Dr. W. C. Clarke, Cairo; Dr. C. F. Ruediger, La Salle, vice-presidents, and Mr. Paul Hansen, Springfield, secretary-treasurer.

Marriages

FRANK FULTON MAPLE, M. D., to Miss Edith Marian Russell, both of Chicago, March 3.

ALFRED ADOLPH STRAUSS, M. D., to Miss Hilda Grunsfeld, both of Chicago, March 27.

JOHN EDWARD SIEBEL, JR., M. D., Chicago, to Miss Pearl Meade of Los Angeles, at St. Louis, February 19.

LEMUEL PINCKNEY PETERS, M. D., Clayton, Ill., to Miss Minnie J. Lucas of Timewell, Ill., at Chicago, January 27.

Deaths

FRANK HANSON, M. D., Worden, Ill., Rush Medical College, 1888; aged 51; died in Joliet, Ill., recently, from pneumonia.

WILLIAM HENRY ALLEN, M. D., Pekin, Ill.; University of Buffalo, N. Y., 1870; aged 67; first health officer of Pekin; died at his home, January 31.

HARVEY LINDSEY HARRIS, M. D., Bellflower, Ill.; Rush Medical College, 1875; aged 70; died at his home, February 2, from carcinoma of the stomach.

CHESTER ARTHUR WINN, M. D., Alton, Ill.; Rush Medical College, 1889; aged 57; died, February 21, in Cuba, Mo., where he had gone in hope of bettering his health.

JACOB BUTLER, M. D., East St. Louis, Ill.; Medical College of Evansville, Ind., 1878; aged 66; formerly a member of the Illinois State Medical Society; died at his home, March 2.

JAMES R. DEWEY, M. D., Chicago; Chicago Homeopathic Medical College, 1888; aged 85; also a lawyer; for forty-one years a teacher of Greek, Latin, geometry and astronomy in the West Division High School, Chicago; died at his home, January 31.

EDMOND H. AMES, M. D., Antioch, Ill.; Detroit Homeopathic Medical College, 1874; aged 70; a veteran of the Civil War; formerly a member of the Illinois State Medical Society; died at his home, March 7, from cerebral hemorrhage.

JOHN THOMAS CURTIS, M. D., Abilene, Kan.; Northwestern University Medical School, Chicago, 1867; aged 79; assistant surgeon of the Ninety-ninth Illinois Volunteer Infantry, during the Civil War; died in the State Soldiers' Home, Abilene, January 11.

FLORENCE LOUISA EVANS, M. D., East St. Louis, Ill.; Barnes Medical College, St. Louis, 1906; aged 41; a Fellow of the American Medical Association; a specialist in clinical pathology and bacteriology; died in Corpus Christi, Texas, March 7, from erysipelas.

JOSEPH EMIL HUBER, M. D., Peoria, Ill.; Northwestern University Medical School, Chicago, 1910; aged 49; a Fellow of the American Medical Association; a specialist in internal medicine; a member of the medical staff of Proctor Hospital and once president of the Illinois State Pharmaceutical Association; died in the Proctor Hospital, Peoria, February 27, from septicemia three days after an operation for cholelithiasis.

CHARLES F. SWAN, M. D., Chicago; Medical College of Ohio, Cincinnati, 1875; aged 64; a Fellow of the American Medical Association; a pioneer practitioner of South Chicago; chief of staff of the South Chicago Hospital; from 1900 to 1902 a member of the staff of Cook County Hospital; who established the first bank in South Chicago; died at his home, March 19, from cerebral hemorrhage.

Book Notices

THE NEWER METHODS OF BLOOD AND URINE CHEMISTRY. By R. B. H. Gradwohl, M. D., Director of the Pasteur Institute of St. Louis and the Gradwohl Biological Laboratories, St. Louis, and A. J. Blaivas, Assistant, formerly Technician in Pathological Chemical Laboratories, New York Post-Graduate

Medical School and Hospital, etc. With sixty-five illustrations and four color plates. St. Louis, The C. V. Mosby Company, 1917. Price \$2.50.

Dr. Gradwohl is more than qualified to write this new work on the chemistry of the blood and urine. This book contains all the latest and newest methods on the examination of the blood and urine. The subject, though scientific, is presented in a most practical manner, making it available for the general practitioner as well as the laboratory worker. For those wishing the latest on this subject, this book will fill the bill.

HANDBOOK OF SUGGESTIVE THERAPEUTICS, APPLIED HYPNOTISM, PSYCHIC SCIENCE. A Manual of Practical Psychotherapy, Designed Especially for the Practitioner of Medicine, Surgery, and Dentistry. By Henry S. Munroe, M. D., Omaha, Nebraska. Fourth edition, revised and enlarged, St. Louis: The C. V. Mosby Company, 1917. Price \$5.00.

The fact that this work has gone through three editions, and now comes out with a fourth, bespeaks of its popularity. This new edition is greatly improved by the addition of new matter and considerable revision. Two entire chapters, one on "The Tie That Binds and the Urge That Drives," and the other on "Suggestion in Dentistry," have been added.

It is a work on suggestive therapeutics that can be easily read and understood, and it covers the field thoroughly. We believe it will continue a success.

THE SURGICAL CLINICS OF CHICAGO. Volume 1, Number 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Published bi-monthly. Price per year, paper, \$10.00; cloth, \$14.00.

The Saunders Company has just issued the first number of The Surgical Clinics of Chicago. The style and make-up of the volume are similar to those of the Murphy Clinics and the Medical Clinics of Chicago.

The clinicians of this number are:

Dr. A. D. Bevan—

Gall-stone Disease

Femoral and Diaphragmatic Hernias.

Dr. A. J. Ochsner—

Goiter

Femoral Hernia

Hernias in Children.

Dr. E. Wyllys Andrews—

Fracture of the Patella

Three cases of Plastic Surgery.

Dr. L. L. McArthur—

An Improvement in the Technic of Gastric Surgery.

Dr. Dean D. Lewis—

Neurolysis and Nerve Suture

Bleeding Nipple

Congenital Pyloric Stenosis.

Dr. Carl Beck—

Open Wound Treatment of Acute and Chronic Bone and Joint Infections.

New Treatment of Large Cavities After Empyema of the Chest.

Dr. Allen B. Kanavel—

Transplantation of Fascia Lata in Exstrophy of the Bladder.

Dr. D. N. Eisendrath—

Head Injuries

Carcinomatous Ulcer on Posterior Wall of Stomach.

Dr. Kellogg Speed—

Tendoplasty for Wrist-drop.

Dr. Samuel C. Plummer—

A Case of Calculous Anuria.

Dr. Edwin W. Ryerson—

Ankylosis of Elbow.

Dr. D. B. Phemister—

Echinococcus Cyst of the Liver

Central Fibroma of Mandible.

Each of these well known clinicians has his own particular method of teaching. For this reason we think these clinics will be more valuable than would be the clinics of one man. They will also cover a more diversified field. Aside from general surgery, they will cover the fields of gynecology, genito-urinary work and eye, ear, nose and throat diseases. In other numbers some forty clinicians of Chicago will contribute. Every physician will enjoy reading this number, and will find it of value.

CLINICAL TUBERCULOSIS. By Francis Marion Pottenger, A. M., M. D., LL. D., Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California; Professor of Diseases of the Chest, College of Physicians and Surgeons, Medical Department, University of Southern California, Los Angeles, California. With a chapter on Laboratory Methods, by Joseph Elbert Pottenger, A. B., M. D., Assistant Medical Director, and Director of the Laboratory, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. In two volumes. Volume I—Pathological Anatomy, Pathological Physiology, Diagnosis and Prognosis. With one hundred and five text illustrations and charts, and six plates in colors. Volume II—Complications and Treatment. With sixty-two text illustrations and charts and four plates in colors. Price, \$12.00 net. C. V. Mosby Company, St. Louis, 1917.

This two-volume work on tuberculosis, by an author who has had the clinical experience Dr. Pottenger has had, is necessarily going to give a large view, from many angles, of the disease, not usually seen by the general practitioner, the surgeon, or even the tuberculosis worker.

In the introduction the author makes a statement which is not usually considered, but which must be understood before the treatment of tuberculosis is going to be effective to any important degree, viz.: "If we are to make advances in our knowledge of tuberculosis

we must take a broader view than that expressed by the prevalent ideas that tuberculosis is a disease due to the tubercle bacillus, which produces a group of tubercles in the lung, and that its cure comes about as a result of good food and open air." One reason treatment of tuberculosis so often fails is because the tubercle only is treated; we lose sight of the patient—the individual.

A strong feature of the work is the author's endeavor to show causes—etiology—for the pathological findings. Functional disorders are studied carefully.

The nervous system claims the author's attention to a marked degree, both as to the effect of the disease upon the nervous system, and its influence upon the cellular activity of the various organs.

Much attention is given to diagnosis of tuberculosis. The etiological classification of symptoms as taught by Dr. Pottenger is a marked advance in the study of tuberculosis, and when symptoms are studied with the etiology in view, a common sense treatment will more frequently result.

We are especially glad to note the author's methods of physical examinations, and the importance he places in such diagnostic methods. The therapy of tuberculosis is well discussed, particular emphasis being given to the fact that the individual needs the treatment, as well as the tuberculous lung.

Space forbids a review of this work which it deserves. We strongly recommend it to the profession and think every physician and surgeon should possess a copy.

COLLECTED STUDIES FROM THE DEPARTMENTS OF PATHOLOGY AND BACTERIOLOGY AND EXPERIMENTAL MEDICINE. University of Illinois College of Medicine, Chicago. Volume II. 1916.

The contents of this volume are as follows: Kidney Lesions in Chronic Anaphylaxis; Resuscitation by Means of Preserved Living Erythrocytes in Experimental Illuminating Gas Asphyxia; A Mixed Tumor (Chronic-Fibro Epithelioma) of the Choroid Plexus; Bacteriology of Chronic Prostatitis and Spermatocystitis; Hemolytic Streptococci Found in Milk; Hemolytic Icterus; On Certain Relations of the Lower Animals to Human Disease; Streptothrix Infections and Their Relation to Tuberculosis; The Permeability of the Gastro-Intestinal Wall to Infection with Sporothrix Schenckii; Epidemics of Pemphigus Neonatorum in Chicago; Bacteriology of Pemphigus Neonatorum; Proteolytic Ferments of the Blood Serum in Tabes Dorsalis and General Paresis; Thymus Death; Treatment of Lobar Pneumonia with Autolyzed Extract of Pneumococcus; Immunologic Studies of Hodgkin's Disease; The Effect of Continuous Electric Light in Experimental Arthritis; Studies in Experimental Scurvy in Guinea Pigs; Experimental Scurvy Produced in Guinea Pigs by Feeding Milk and Milk Products; The Wassermann Test in the Medical Dispensary; The Value of the Wassermann Test in Pregnancy; Full Term Ectopic Gestation; The Role of Cholesterol in Pathology.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

VOL. XXXI

CHICAGO, ILL., MAY, 1917

No. 5

Original Articles

POST-OPERATIVE VOLVULUS.*

C. A. BUSWELL, M. D., F. A. C. S.,

CHICAGO.

The object of presenting this paper is to bring before the profession this subject that a free discussion may be had with especial reference to its etiology and prophylaxis.

Volvulus is a twisting of the intestine upon its long axis until there is sufficient interference with the blood supply to cause strangulation unless relief is afforded.¹ The exact mechanism of its production is unknown, but the two necessary factors are, first, a congenital or acquired defect in the intestinal attachment allowing of a free mobility, and second, a condition producing an artificial pedicle.

Abnormal length of the mesenteric attachment of a loop of bowel, especially when combined with a lateral contraction of the mesentery, is the most important cause of volvulus.² The mesentery may be *elongated congenitally* or it may become stretched as a result of continued constipation and overloading of the affected portion of the bowel and some stretching may result from *adhesions* of some part of the intestinal canal to fixed abdominal structures. A not uncommon cause of elongation is the inclusion of a coil of intestine in a hernial sac. Narrowing or contractions of the mesentery may occur without special elongation as a result of inflammatory conditions. A laxness and relative elongation of the mesentery may be caused by a loss of fat in the abdominal walls and in the mesentery itself. In women, after repeated pregnancy, these conditions frequently occur.

The conditions which predispose to volvulus are more frequently found in persons of advanced years than in the young, and volvulus is therefore most common in the aged to those past

middle life. The immediate cause may be a strain or some effort as in lifting or a traumatism, such as in compression of the body. Sometimes overloading of the intestinal tract combined with some effort or strain is of importance. Thus in old people who have suffered from habitual constipation the sigmoid flexure becomes elongated and its mesentery stretched.

In simple volvulus, a loop of intestine twists about its mesenteric attachment. There may be a partial turn or several complete turns. In the former case the obstruction of the bowel is partial or incomplete. In the latter it is almost certainly complete and in addition the blood vessels become so compressed that intense venous engorgement results. Whether the obstruction is partial or complete, but especially in the latter case, distension of the obstructed portion of the bowel rapidly ensues. The bowel becomes dark red or purplish in color and its walls are deeply engorged with blood and swollen by edema. Then extravasations of blood are seen upon the surface and blood stained liquid exudates into the lumen of the bowel as well as into the peritoneal cavity. Finally gangrene takes place. The striæ of the bowel are obliterated by the over extension and rents of the serous coat may occur. Rupture of the bowel, however, rarely takes place. It is more likely to be found above the volvulus than in the affected portion.

Peritonitis sets in rather promptly as a result of bacteria escaped through the injured, congested and edematous walls of the bowel. When bloody extravasation is present in the peritoneal cavity the escaping bacteria may occasion putrefactive changes.

In going over the literature we learn from French³ that: volvulus constitutes 14 per cent. of all cases of intestinal obstruction. A majority (68 per cent.) of twists are encountered in men and about one-third of them between the ages of 30 and 40. The large intestine is involved in nearly 90 per cent. of the cases, most commonly the sigmoid flexure, next the cecum. The condi-

*Read before the Chicago Medical Society, Jan. 31, 1917.

tion is favored by an unusual length of mesentery, elongation of the intestine by hernia, the traction of adhesions or an accumulation of feces. Rarely one loop of the intestine is twisted about another. The bowel may be twisted on its long axis a half turn, a whole turn or more, complete strangulation being produced. If the intestines below the constriction are distended and deeply congested, a fatal peritonitis is usually developed. Knots are extremely rare. Reichel⁴ has shown by direct experiments that simple kinking of the bowel artificially done, is not sufficient to produce obstruction, but there must be infection and localized surrounding peritonitis at the angle.

Craig⁵ says: "Volvulus, aside from its peculiar postoperative relationship, is, of course, generally confined to the sigmoid flexure and is fully understood. After the manipulation of the intestinal coils incident to a *celiotomy a volvulus is possible in the small intestines as well*, especially in connection with recent adhesions, as will be shown later."

The chief cause of postoperative obstructions is adhesions and apertures left in the omentum or mesentery.⁶ Adhesions may act in various ways. A part of the intestine that normally belongs in the middle or upper abdomen may become adherent in the pelvis, causing a kink or twist. A broad layer of adhesions, from the peristaltic action of the intestines, may become twisted and thickened until a definite band of considerable strength is formed.

From Nothnagel⁷: Causation of postoperative intestinal obstruction by recent (new) adhesions gluing together the adjacent sides of a looped intestine throughout their entire contiguity and thus producing a sharp angulation. On the other hand where two portions of a large loop become attached to each other at a single point no obstruction may be directly resultant, but volvulus becomes extremely easy, especially in the sigmoid.

Gaynet and Laroyenne⁸ presented a patient who eight days after the removal of an ovarian cyst, had to be operated on again for symptoms of intestinal occlusion. This operation showed the existence of a volvulus of the cecum which was untwisted; then fixation made to the abdominal wall. The intestinal occlusion disappeared immediately.

Lund⁹ in reporting a case of intestinal obstruction found at second operation volvulus

which he attributed to coughing and vomiting following anesthesia.

Deaver¹⁰ states that in 276 cases of acute intestinal obstruction there were five cases of volvulus of which three recovered and two died, or 40 per cent. This is a condition not very frequently and generally not definitely diagnosed before operation. The sudden onset and rapid development of symptoms, however, are always sufficient to make clear the fact that some abdominal catastrophe demanding surgical attention has occurred.

Woolsey¹¹ in reviewing five years of intestinal obstruction at the Presbyterian Hospital, N. Y., found out of fifty cases two were volvulus. The two great etiological factors in postoperative obstruction are either of a septic or a mechanical nature. The etiology of mechanical obstruction is not difficult to understand, though the mechanism is varied. When due to strangulation, the cause is usually a band or a volvulus or both.

I have recently operated on an example of the latter type. When a band, due to operation 13 years before, had so narrowed the mesentery at the base of a loop of ileum as to render volvulus an easy matter. In addition the band itself tightened by the twist of the volvulus, strangulated the mesentery and compressed one end of the loop. Resection of 14 inches was done and recovery was uneventful.

In a strangulation there is usually an obturation at one or both ends of the loop from the band or volvulus, but the important factor is the stasis of the blood supply.

Practically all cases of postoperative obstruction are due to sepsis, operative trauma or adhesions.

Records of Cook County Hospital show several cases of postoperative volvulus and those that have done the best were those where the contents of the bowel were drained.

In regard to our own case of volvulus and the one which has prompted me to present this paper, I have the following to report: Examination made April 14, 1913. The record shows she was married seven years, one child 6 years old, menstruation regular, no pain; troubled with chronic constipation; nervous system hypersensitive. There was an enlargement of the thyroid gland; there was a history of severe attack of inflammation of the right lower quadrant when a child, which had continued to give trouble at intervals since. Physical examination at this date reveals abdominal tympanites most marked over the transverse colon;

McBurney point painful on palpation, and muscular contraction.

Vaginal examination shows a small rectocele; bilateral laceration of the cervix; on bimanual palpation of the uterus, tubes and ovaries painful. Diagnosis: Chronic appendicitis with inflammation about the uterus, tubes and ovaries. From this date to the time of entrance to the German hospital, which was July 12, 1916, she continued to have exacerbations of this disturbance in the region of the appendix. Operation July 13, a right rectus incision was made. We found the appendix to be chronically inflamed, with strong bands of adhesions from the appendix and ileo-cecal valve to the right abdominal peritoneum. On examination of the gall bladder, pylorus and upper abdominal cavity they were found to be normal. Examination of the pelvic organs, both tubes and ovaries were found to be bound down with a mass of adhesions posterior to the uterus.

The operations consisted of removal of appendix, left tube and ovary with a resection of the right ovary. The operation went off smoothly, time about one hour.

On July 17 there were marked symptoms of intestinal obstruction and we called Dr. Nelson Percy in consultation.

July 18 we concluded a second operation was inevitable. This was performed at 11:30 p. m. by Dr. Percy and myself. The abdomen was opened in the region of the old incision and we found the intestinal obstruction due to volvulus of the small intestine. A loop of bowel which was approximately 16 or 20 inches long was untwisted. The intestine was opened above the obstruction and the contents drained, then closed and returned to the abdomen. The patient died at 8 o'clock July 19, 1916.

After consideration of this experience and the above literature we are forced to conclude that volvulus is a mechanical condition and that this loop of bowel is through some mechanical procedure twisted upon its pedicle and that instead of righting itself is held in position by some form of pressure or adhesions. In our own case we find an elongated pedicle but no perceptible adhesion. A blow or contortion through nausea and vomiting or coughing may also be considered an important factor.

We learn also that obstruction follows in about 1 per cent. of all abdominal operations and in reviewing 100 cases of intestinal obstructions, 18 were due to volvulus; also that the death rate of volvulus is appalling, varying with different operations from 40 to 60 per cent. We also find the literature to be very obscure in many cases as to postoperative volvulus and we urge that a most careful examination and record be made by surgeons who come in contact with this disease and that great care should be taken in making

abdominal explorations during operations to correct the position of the intestine disturbed.

BIBLIOGRAPHY

12. Adams, J. E.: Case of Acute Volvulus of the Ileum with Gangrene of the Gut, 8 Months after a Successful Operation for Intussusception. *Med. Press & Circ.*, 1910, n. s. XC, 625.
13. Burnside, C.: Postoperative Intestinal Ileus. *Iowa Med. Jnl.*, 1910-11, XVII, 542.
14. Buchtel, F. C.: Postoperative Obstruction. *Denver Med. Times*, 1908-9, XXVIII, 56-62.
15. Craig, D. H.: The Prevention and Treatment of Postoperative Intestinal Obstruction. *J. A. M. A.*, 1907, XLIX, 1266.
16. Deaver, J. B., and Ross, G. G.: The Mortality Statistics of 275 Cases Acute Intestinal Obstruction. *Tr. Phila. Acad. Surg.*, 1915, XVII, 167-74.
17. Duret, H.: Un fait du renversement pour opérations abdomino-pelviennes; volvulus ileique. *J. d. sc. Med. de Lille*, 1910, I, 25-29.
18. Ford, M. J.: Postoperative Ileus. *West. Med. Rev. Omaha*, 1915, XX, 96-106.
19. French, G. M.: Practice of Medicine, 1910, 818.
20. Gaynet & Laroynne: Postoperative Occlusion by Volvulus of Cecum. *Lyon Med.*, 1912, CXVIII, 972-94.
21. Goullioud: Volvulus pos opératoire d'une anse grele dans un cas de colopexie. *Lyon Chir.*, 1914-15, XII, 377-83.
22. Judd, A. M.: Postoperative Mechanical Obstruction of the Bowel Occurring Shortly after Operative Procedure. *Long Island Med. Jnl.*, 1912, VI, 9-11.
23. Levings, A. H.: Ileus Following Laparotomy. *Med. Rec.*, 1910, LXXVII, 1048.
24. Lund, F. B.: Intestinal Obstruction Following Gastroenterostomy for Pyloric Obstruction. *Bost. Med. & Surg. Jnl.*, 1905, CLII, 549.
25. McLean, Angus: Postoperative Ileus. *Ann. Surg.*, 1914, LIX, 407-18.
26. Nothnagel: Diseases of Intestines and Peritoneum.
27. Osler & McCrae: Practice of Medicine, III, 412.
28. Power: A Clinical Lecture on Volvulus. *Am. Jnl. of Surg.*, XXX, June, 1910.
29. Reichel: Zur Pathologie des Ileus and Pseudoileus. *Dent. Zeit. f. Chir.*, Bd. 35.
30. Sweetzer, H. B.: Postoperative Ileus. *St. Paul Med. Jnl.*, 1913, XV, 210-23.
31. Vance, C. A.: Injury to Intestine Followed by a Volvulus. *Kentucky Med. Jnl.*, 1916, XIV, 225.
32. Woolsey, G.: Postoperative Intestinal Obstruction. *Surg., Gyn. and Obs.*, 1910, X, 608.

POST-OPERATIVE SEQUELÆ AND THEIR AVOIDANCE.*

GEORGE DE TARNOWSKY, M. D., F. A. C. S.
CHICAGO.

As it is manifestly impossible to cover all surgical sequela within the short space of time allotted me in this symposium, my remarks will be confined to the abdomen, and I shall merely seek to emphasize a few practical points. Our service at the Cook County Hospital gives us a rare opportunity for studying the unfortunate results of surgery. Many patients, having spent their money elsewhere, and finding themselves troubled with postoperative complications, are forced to accept free service in their search for relief. This statement does not in the least imply that we do not have—on occasion—to repair sequela on our own patients; the fact remains that the Cook County Hospital is, in a measure, the clearing house of the county.

I would desire, first of all, to call to your at-

*Read before the Chicago Medical Society, Jan. 31, 1916.

tention the question of atrophy of abdominal wall muscles due to interruption of nerve supply, a subject which does not receive the attention, in medical literature, which its paramount importance calls for.

In inguinal herniotomies, after splitting the external oblique muscle and exposing the canal, a small nerve is to be seen passing one c. m. above and almost parallel to the lower margin of the conjoined tendon. This is the most important trophic nerve of the conjoined tendon. Its removal or inclusion in the coapting sutures is probably responsible for many hernial recurrences. I have repeatedly operated upon such recurrences at the Cook County Hospital and found an almost complete atrophy of the conjoined tendon, together with absence of the aforementioned branch of the ileo-inguinal nerve. It should always be sought for and its injury carefully avoided. While on this particular region, let me also call your attention to the mass of pre-peritoneal fat which is found in almost seventy-five per cent. of all inguinal herniæ. This mass as pointed out by my colleague, Dr. Speed, varies in size from a small oblong mass having the diameter of a lead pencil to one of the size of a man's thumb, and is always located antero-internally to the hernial sac proper. If left in situ, it is bound to act as a wedge and undoubtedly also predisposes to recurrences. Its careful removal should, therefore, be imperative.

In laparotomies, especially those involving the upper abdomen, we not infrequently get an atrophy of the rectus muscle with the slow or rapid formation of a ventral hernia. The nearer our incision approaches the outer edge of the rectus, the greater will be the destruction of the abdominal intercostal nerves which supply it. In lower abdominal trans-rectal incisions there is also the added danger of injury to the deep epigastric artery, causing a combined defect of blood and nerve supply. In surgery of the lower abdomen, where muscle separation is not advisable, the para-median incision should always be employed. While the old transverse rectus incision of Mickulicz has largely been abandoned in gall-bladder surgery, on account of the marked retraction of muscle fibres which it caused, the method of Willy Meyer in avoiding this is placed on a sound theoretic and practical foundation. Meyer anchors the rectus muscle to its anterior sheath above and below the proposed

line of incision, thereby preventing retraction of its fibers. The transverse incision of the peritoneum, as practiced by L. L. McArthur, for exploration, drainage or removal of the gall-bladder has been of great help to me. Coaptation of the peritoneum thus becomes simplicity itself. In closing any laparotomy wound, additional retention sutures should always be placed, including the anterior rectus sheath and skin, and should not be removed until normal peristalsis is restored. Some of us are still using too much tension in our sutures. An easy coaptation of tissues, and not pressure necrosis, gives us the firmest repair of abdominal wall structures. In operations upon the kidney the same consideration should be given to nerve supply.

As indications for drainage lessen, inter-muscular incisions will become more and more habitual. Either the para-median or the transverse rectus incisions should be employed in all upper abdominal operations.

The question of postoperative fecal fistulæ is a very important one. While a percentage, though very small, of operations for appendiceal abscesses, for tubercular peritonitis, for salpingitis, for ovarian cysts, or for certain types of carcinoma of the bowel can reasonably be expected to develop a fecal fistula, it is my conviction that many of these cases we encounter are directly traceable to faulty judgment or defective technique, either during the operative or postoperative period. Our present tendency is towards using fewer laparotomy sponges throughout the course of the operation, a minimum handling of the tissues, and dispensing with tubal or other forms of drainage. When we shall all be agreed regarding the defensive and not destructive meaning of peritonitis, and when our technique shall be entirely devoted towards increasing the defensive properties of the peritoneum, our mortality and postoperative sequelæ will be reduced to their normal minimum. That abuse of drainage, and more particularly, that the repeated reintroduction of drainage tubes or of cigarette drains into the peritoneal cavity, account for a large percentage of postoperative fistulæ, is my firm conviction. Within the past six months I have had the unpleasant task of repairing four such fistulæ and of these, three communicated—either singly or by several sinuses—with the ileum, not the cecum. In all four cases drainage tubes had been repeatedly in-

troduced, removed and reintroduced. One patient, a boy sixteen years old, had had his fistula since December, 1913! In this case I repaired three perforations of the ileum and did a lateral ileocolostomy with most gratifying results. A second case, that of a young man twenty-two years of age, had been patient for nine months, following a laparotomy for appendiceal abscess. I closed two perforations of the ileum and incidentally removed an apparently intact appendix. I carefully say, apparently, because the specimen was lost before it could be subjected to a microscopic examination. Multiple intestinal fistulæ, produced by the cutting action of through and through silk-worm-gut sutures, constitutes an anomaly which occurred on my service at the Cook County Hospital. A male patient was brought in nine days, after having been kicked in the abdomen, with well marked symptoms of ileus. He collapsed as soon as the peritoneum was opened. He was hurriedly given a quart of normal saline by phlebotomy, two cigarette drains were left in the peritoneal cavity and the incision closed with through sutures. Twenty-four hours later, following a violent fit of coughing, a half inch diastasis of the incision occurred, thus exposing the silk-gut sutures. Fourteen fistulæ of the small bowel were formed by the peristaltic friction of the bowel on the sutures, these were all repaired, but the patient succumbed a week later to general sepsis.

For the prevention of postoperative shock, a rapid, safe technique, which should include a minimum handling of tissues, as well as delicacy of handling, plus the prevention of acidosis, should be our aim. Long before the subject of acidosis was placed on a scientific foundation, clinicians were empirically using large doses of potassium and sodium bicarbonate before and after operations. I knew personally that my colleague, Dr. A. B. Keyes, was using antacids twenty-five years ago. Whether or not we can follow Crile in his theory of anoci-association, we owe him a deep debt of gratitude for having popularized the prevention and cure of surgical acidosis. There is no question but that patients who have received half drachm doses of sodium bicarbonate, three times daily, for two days prior to, and four or five days following laparotomies, convalesce more rapidly and manifest less shock

than do those deprived of this simple but efficacious method.

When we consider that operations for the relief of postoperative intestinal obstruction give us a mortality of almost fifty per cent., prevention of this formidable complication should enlist our most careful attention. Without unduly going into minute details of technique, it is axiomatic that a minimum of trauma, covering of all raw surfaces, avoidance of drainage and complete closure of the abdomen, followed by primary union, will minimize such a surgical calamity. If the obstruction is incomplete, procrastination is permissible as many adhesions stretch or disappear; when complete, the sooner we re-enter the peritoneum and repair the condition, the lower will be our mortality. Even a paralytic ileus is not necessarily a fatal complication. Re-opening of the abdomen, with puncture of a loop of distended bowel and drainage of bowel contents, relieves the patient of tympanites and septic material at the same time. The puncture may be closed or a temporary enterostomy may be made. I do not think it wise to perform either an entero-enterostomy or a resection in the presence of a paralytic ileus. Pritudin in ileus is enthusiastically recommended by C. L. Gibson of New York. I have no personal experience with this drug, but, on theoretic grounds, the danger of its causing intestinal rupture must not be lost sight of.

There are many other interesting sequelæ which could be discussed in a longer paper; perhaps the colleagues who are to lead in the discussion will bring a few of them out.

LOCAL ANESTHESIA.*

FREDERICK G. DYAS, M. D.,
CHICAGO.

The development of the various forms of anesthesia has not kept pace with the advancement of surgical technique.

Generally speaking, there is about as much hazard to the patient from the administration of a general anesthetic as there is from the performance of a major operation itself in competent hands.

This statement applies both to the immediate and remote effects of the anesthetic.

*Read before the Chicago Medical Society, March 21, 1917.

Medical men have been so engrossed with matters of surgical technique that only too often the question of the anesthetic has been given scant consideration. The unfortunate patient usually fell into the hands of the youngest member of the hospital interne staff, who was vastly more interested in the progress of the operation than in the administration of the anesthetic. This, of course, resulted in many tragedies until the method now in vogue in most of our large hospitals was put into operation, viz., the employment of salaried, skilled anesthetists to take the place of the green interne. This movement resulted in a great improvement in the postoperative complications and gave the surgeon a sense of security during the course of the operation, which was in marked contrast to the constant anxiety as to the anesthetic under which he labored in former times.

However, general anesthesia can probably never be robbed of a certain amount of hazard no matter what agent be used or how skilled the anesthetist, therefore, it is the duty of the medical profession to adopt local for general anesthesia whenever possible. Young children and very nervous individuals will probably always require general anesthesia for operative work, but the number of operations which can be satisfactorily performed under local anesthesia upon normal individuals is rapidly growing, and it is a striking fact that physicians and nurses who have had opportunity to observe the practical effects of local anesthesia nearly always choose that method for operations upon themselves.

The method of local antedates that of general anesthesia as it was practiced by the ancient Arabian physicians in the form of nerve compression. Large nerve trunks were subjected to pressure until anesthesia was produced in the area supplied by that nerve.

Cold, applied directly to the affected part in the form of ice, and later freezing sprays, is a method known even to the laity. Many of these sprays have been extensively used and have filled a very important part amongst local anesthetics.

Chemical agents, such as poppy, Indian hemp, mandrake root, opium, ether and chloroform, were extensively used locally until the discovery of the hypodermic method of medication by Wood in 1853. This opened up a wide field for the local administration of drugs believed to have

anesthetic properties and was closely followed by the discovery of the anesthetic properties of cocaine, by Scherzer, in 1860. Cocaine was first used for surgical purposes by Reclus, who later abandoned it because of its toxicity.

Schleich popularized the use of cocaine by using it in combination with morphine in dilute solution as cocaine hydrochlorid. However, cocaine has had a bad history and the profession was afraid to use it extensively for major surgical work. As a result of this fear, an attempt was made to find a less toxic agent. Various drugs have been used, many of them extensively, but it remained for novocain to fill the long-felt want. This substance is said to be about only one-seventh as toxic as cocaine, and yet possesses to a remarkable degree its property of inducing analgesia. However, this fact is of the greatest importance, viz., that novocain used in sufficient dosage to produce satisfactory local anesthesia, is practically without toxic effect. In the summer of 1916 another substance was introduced experimentally to take the place of novocain, which was almost impossible to procure. The name of this agent is apothesine and it was distributed to a number of men working with local anesthesia by Parke, Davis & Co. About 85 major operations were done with the apothesisin supplied to me, which is used in the same strength and dosage as novocain. Its toxicity is probably about the same as novocain, and it has the same resistance to boiling. As a local anesthetic, it appeared in no way to be inferior to novocain. Unfortunately, apothesisin is not obtainable at the present time, but the hope is held out that it will be put upon the market before long.

"The degree of toxicity of most drugs depends upon the rapidity of their absorption. 0.3 to 0.4 gm. of novocain in aqueous solution may be dangerous when rapidly absorbed, while 0.5 to 1.0 gm. may be safely used where absorption is slow. Prolonged boiling destroys the action of novocain, but boiling two or three minutes does not harm. The anesthetic effect of novocain may be prolonged by using solutions of magnesium sulphate and calcium chlorid in strengths of one-fourth to one-half of one per cent." M. L. Harris.

Potassium sulphate likewise increases the duration of analgesia when combined with novocain.

Hertzler says the duration of novocain anesthesia without an adjuvant is about fifteen min-

utes, but its action is more prolonged when adrenalin is used.

Balfour³ states that the healing of wounds has not been retarded by the use of novocain in the cases observed in the Mayo clinic.

Braun⁴ whose book on local anesthesia is classic, proved by experiments upon himself and others, that the addition of one-half per cent. potassium sulphate to the novocain solution, markedly prolonged the anesthesia.

Harris has recently used chloretone for the purpose of increasing the duration of the local anesthetic. Chloretone is added to the novocain preparation in sufficient amount to form a saturated solution. It is necessary to bear in mind that chloretone volatilizes at a temperature of 160° F. and, therefore, after boiling the novocain solution time must be allowed for the temperature to subside to 160°F. or lower, before adding the chloretone.

Bier's method of local anesthesia consists of the intravenous injection of novocain between two ligatures or bandages tightened about a part. This method has no advantages over the method of infiltration or nerve blocking, but carries with it the added danger of rapid absorption from the venous circulation when the constriction is removed.

For a long time local anesthesia was almost wholly confined to operations upon the eye, nose and throat. In major surgery, the local method for a long time fell into disrepute because of the toxicity of cocain. Braun makes the statement that were it not for the introduction of the less toxic novocain and adrenalin which made possible the development of the technique of infiltration anesthesia and nerve-block, the method of local anesthesia would in time have been abandoned.

Braun⁵ states further that the chief points of the new technique of local anesthesia are the infiltration of the field of operation, the blocking of the sensory nerve paths, and where it is possible a combination of the two methods with a direct infiltration of the line of incision. Es-march's constriction of an extremity is not necessary to procure good anesthesia where adrenalin is employed. Many operators employ twilight sleep to procure a tranquil state of mind for their patients, and I can recommend this strongly to those who have not used it, as an auxiliary to the

local anesthetic. Too little attention has been paid to the psychic condition of patients, whether they were to receive a general narcosis or a local anesthetic. While Crile justly receives the credit for calling attention to the enormous importance of anesthetising the patient under the proper environment and in such a manner as to quiet his fears, many others appreciated the necessity of preserving absolute quiet in the anesthetising room. Loud noises and the clatter of instruments may often unnerve a patient and always increase the amount of anesthetic and the length of time necessary to procure narcosis. The same principle holds true in local anesthesia.

Kroenig and Sigel⁶ state the following: "We avoid disturbing the patients by light or sound. Patients in twilight sleep are particularly susceptible to stimuli of light. To avoid this, patient's ears are plugged with cotton and the eyes bandaged. With these precautions, we produce in the majority of cases a complete amnesia of the operation and preliminary preparations. Thus we accomplish the first of Crile's requirements, i. e., the elimination of psychic trauma."

Bloodgood⁷ says "during a successful operation with local anesthesia the blood pressure remains normal. Sudden rises indicate painful manipulations. When these are continued they are followed by a fall in the blood pressure. This means shock." During the past eighteen months I have done certain operations only under local anesthesia, but with each succeeding month I have extended the use of the infiltration and nerve blocking method, until now fully one-half of my operative work is done without the aid of a general narcosis.

No man who has given the matter consideration can help feeling that under the usual methods of anesthetising patients, the hazard to them from the use of a general anesthetic, even in skilled hands, is too great, not to mention the danger of postoperative complications.

Ether, chloroform, nitrous oxide and oxygen, or ethyl chlorid may cause death per se in dosage sufficient to produce good narcosis. Novocain and certain other agents used to produce local anesthesia are practically without danger to the patients in amounts necessary to produce complete analgesia of the operative field.

Ether and chloroform cause postoperative nausea and vomiting, acute dilatation of the

stomach and increase the gas pains following laparotomy. More remotely ether not infrequently causes postoperative pneumonia, and chloroform may produce degeneration of the liver parenchyma.

Recently I performed a herniotomy under ether anesthesia, because on that particular morning I was unable to procure any novocain. The patient began to cough up a rusty sputum on the third day, and in the following twenty-four hours presented the classic picture of a lobar pneumonia. I believe this pulmonary complication was directly chargeable to the use of ether, and while the man recovered, his convalescence was considerably prolonged, and he had had unwillingly conferred upon him an increased susceptibility to pneumonia.

In two cases recently operated on for inguinal hernia, under infiltration and nerve block, the patients were given full meals of meat and potatoes, unknown to those in attendance, three hours after the operation, which they ate with relish and without bad effect. One of these men felt so well that he persuaded another patient to smuggle him his clothes, with which he walked the length of a long ward and indulged in a cigarette within four hours of the conclusion of his operation. It goes without saying that few ether patients enjoy such a sense of well-being on the day of the operation.

The use of local analgesia compels greater gentleness in the manipulation of tissue. This lessens local trauma and post-operative pain.

In out-patient dispensaries patients may be immediately discharged following minor operations, which from an economic standpoint is of the greatest importance both to the individual and to the hospital.

Under conditions when an anesthetist is not available, the operator who uses local anesthesia is able to proceed unaided.

The arguments most frequently heard against the use of the local method are that it is time-consuming and produces imperfect analgesia. The first objection may be answered by the fact that frequently the production of a general ether narcosis takes longer than does the interruption of pain conduction by nerve block or infiltration. This is especially true of hemorrhoidectomy, as evidenced by the fact that many patients wake up during ether anesthesia when the sphincter

ani is dilated, and require considerable more ether to continue the narcosis.

The objection of imperfect analgesia may fairly be said to depend upon the skill of the medical attendant, as the ability to produce satisfactory anesthesia increases with training and experience.

The use of various agents for the production of local anesthesia by the methods of infiltration and nerve block, is becoming daily more a matter of routine. Braun gives in detail the statistics of three large German hospitals covering the last ten years of cases done under general and local anesthesia, showing an increase during that time from less than one per cent. to over fifty per cent. of cases done under local anesthesia.

This is a striking proof of the growth of this method, and I feel confident that a study of the postoperative morbidity and mortality reports would show greatly in favor of the local method.

PERMANENT NERVE BLOCK FOR CHRONIC INTRACTABLE PAIN

Great as are the advantages of local anesthesia, I believe that its greatest field of usefulness has just been opened up. I refer to the permanent nerve-block for the relief of chronic pain.

This method of treatment must be reserved for those patients who have gone beyond the hope of other relief; as in recurrence of malignant tumors after operation. If it were possible, by the injection of those nerve-trunks which supply the painful area, to produce a localized analgesia, the necessity for the use of morphin would be obviated, and the unfortunate patient might be conducted to a peaceful end.

It is well known that morphin and other drugs of its kind do not entirely control the severest pain. I recently lost a case of recurrent carcinoma of the breast with enormous swelling of the arm upon the affected side, in which the pain toward the last could not be controlled entirely by hypodermic injections of one and one-half grains of morphin every two hours. It is in such a case that the proposed method of alcohol injection of the brachial plexus by the method of Kuhlenskampf, would render the entire upper extremity anesthetic. Of course at the same time there would be a motor paralysis, because the nerve trunks are made up of both motor and sensory fibers. However, the loss of motor power under such conditions would be negligible.

The same method can be used in carcinoma of the pelvic organs by blocking the sacral plexus. For hopeless conditions of the upper abdomen the paravertebral injection of the intercostal nerves might be employed. This method was suggested to me by the well known use of solutions of alcohol in from 40 to 60 per cent. strength, for injection of the trigeminus nerve in cases of tic douloureux.

Those who have used this method most extensively say that perfect analgesia is produced whenever the alcoholic solution reaches the nerve trunk. This analgesia persists from six to eighteen months. If this same analgesia can be produced in those nerve paths which conduct the painful sensation from the diseased area, we shall be able to produce as complete a loss of pain for as long a time as in the case of trigeminus neuralgia.

I, therefore, predict for this method of local anesthesia its greatest field of usefulness, and believe that the method of local anesthesia will continue to find more adherents for its use, both for the production of temporary and lasting local analgesia.

CONCLUSIONS.

1. The patient's life is not endangered by dosage sufficient to induce local anesthesia.
2. The general comfort of the patient after operation is much improved because of lessened trauma and decreased gas pains.
3. Convalescence is not complicated by the anesthetic and thereby shortened.
4. Ambulatory patients may be immediately discharged after operation.
5. An anesthetist is unnecessary, but a "Moral anesthetist" is desirable.
6. The use of adrenalin renders the field less bloody, prolongs anesthesia, delays absorption, and thereby lessens toxicity.
7. Nerve-block as a lasting anesthesia for chronic pain should find as wide an application as its use for operative procedure.

REFERENCES.

1. Nerve Blocking. M. L. Harris. Jour. of S. G. O., p. 191, Feb., 1915. Radical amputation of breast under local anesthesia.
2. Hertzler.
3. Balfour, D. C. St. Paul Medical Jour., 1914, XVI, p. 83.
4. H. Braun. Central. f. Chir., 1913, XL, 1513. Use of potassium sulphate to strengthen the local anesthetic effect of novocain.
5. Braun. Lokal anesthesia, Vierte Auflage.
6. Koenig and Sigel. Jour. of S. G. O., 524, May, 1916. Shockless surgery with the aid of Paravertebral Anesthesia and Scopolamine and Narcophine.
7. Bloodgood. Trans. Am. Gyn. Soc., May, 1913.
8. H. P. Cole. Jour. of S. G. O., p. 246, Feb., 1916.

ORTHOPEDIC TREATMENT OF POLIO-MYELITIS ANTERIOR.

EDWIN W. RYERSON, M. D.,

Professor of Orthopedic Surgery, Chicago Polyclinic; Assistant Professor of Surgery, Rush Medical College; Orthopedic Surgeon, Children's Memorial Hospital, and Home for Destitute Crippled Children.

CHICAGO.

It is well within the bounds of truth to say that practically every case of infantile paralysis can be improved by proper treatment. The medical side of the management will not be discussed in this paper further than to say that it seems reasonable to give hexamethylenamine as a prophylactic and in suspected cases, and that injections of serum from recovered cases may prove to be beneficial. Meltzer's proposal to inject adrenalin into the spinal canal during the acute attack is also attractive.

The orthopedic treatment of these patients is of great importance, and every general practitioner should familiarize himself with its principles. The course of the disease is arbitrarily divided into three stages. First, the acute stage, beginning with the onset and lasting until all pain has ceased. Second, the stage of convalescence, lasting approximately two years in cases which are properly treated, and third, the chronic stage, when no further improvement in actual nerve conduction can be expected.

In the acute stage, after the paralysis has become well established, rest and prevention of deformity are the most important considerations. Massage, electricity, active and passive motions should not be used as long as any pain is present. The patient should be kept recumbent in bed, and if the pain is very severe a Bradford gas-pipe frame or a plaster of Paris cast may be applied to secure immobilization. Any tendency to foot-drop, flexion of the knees or other position-deformity must be prevented by light apparatus, such as tin, wooden or plaster of Paris splints, since even in the earliest weeks a severe contracture of muscles, particularly of the tendo Achillis, may occur. The legs should be kept parallel and not allowed to become spread apart, as the tensor fasciæ latae (tensor vaginæ femoris) is apt to become structurally shortened.

The acute or painful stage usually lasts only a few days, although it may be prolonged for weeks or even months. Care must be taken to keep the affected parts warm at all times. The patient's

general health and hygiene should be looked after, but all unnecessary medication should be avoided.

When the pain has entirely disappeared, the second, or convalescent, stage is reached. It is now important to make a careful examination of the extent and distribution of the paralysis. A written record should be made of all of the affected muscles, with an estimate of their relative loss of power. This can be fairly well done, after a little practice, by simply asking the patient to resist while the physician attempts to move the various joints. The spring-balance method of testing muscular power, recently devised by R. W. Lovett, is much more satisfactory, but more complicated. Electrical tests are often misleading and always useless.

During the convalescent stage it is extremely important to avoid tiring the affected muscles. It must be remembered that many of the muscles are not entirely paralyzed, but merely weakened, and they will not regain their normal strength if they are overworked. Light massage is undoubtedly helpful. Electricity is of no demonstrable value. Careful muscle-training is the keynote of therapy in this stage, but it must not be pushed to the point of muscle-exhaustion. Orthopedic apparatus is often necessary to prevent deformity and also to prevent the over-straining of weakened muscles. Some of the most useful braces are of the simplest type, and can be made by any moderately intelligent blacksmith. They should always be as light as possible, and for this reason celluloid splints, molded over plaster of Paris models, should be used when circumstances permit. They are, unfortunately, rather expensive.

Efforts should be made in the severer cases to prevent the patients from becoming bed-ridden. Corsets or back braces may be necessary, in addition to leg braces. No operative treatment should be considered during the convalescent stage; that is, until at least two years have elapsed since the onset of the disease.

The only exception to this rule is in the case of severe deformity which has not yielded to conservative treatment. Here it is permissible to perform tenotomies or tendon and muscle lengthenings so that proper apparatus may be applied.

To summarize the treatment in the second stage, it is advised to keep the affected parts warm, to encourage the careful exercise of the

weakened muscles, to avoid their overuse, and to prevent deformity.

The third, or chronic stage, is reached when no further muscle-strength can be developed. A careful survey of the patient's condition must now be made, and the defects noted in the order of their importance. The subject of treatment now becomes of economic importance. The patient must be made able, if possible, to walk without crutches or braces, and to maintain an approximately normal shape. Probably the hardest problem is the prevention and cure of scoliosis, or lateral curvature of the spine, in those unfortunates who have paralysis of the abdominal or spinal muscles. Forcible correction by plaster casts is useful in some cases, and a few patients have had bone splints placed in the spine to maintain the correction. Corsets or braces will be of much more general use in this class of cases, however, as a rule.

Paralysis of the legs, of greater or lesser severity, is found in the vast majority of infantile paralysis cases, and it is here that the chief surgical interest is centered. Operations may be required, first, for the prevention of deformity; second, for the relief of deformity; third, to redistribute properly the remaining muscular strength, and fourth, for the production of stability.

Deformities must always be corrected, if possible. Osteotomies, tenotomies and myotomies are often necessary. In the milder cases the transplantation of tendons or muscles may produce brilliant results. It requires experience and judgment to select the proper cases for this procedure, and without great care the results may be disappointing. Some of the most satisfactory transplantations are those of the peroneus longus or the toe extensors to the paralyzed tibialis anticus, or two of the hamstrings to the paralyzed quadriceps extensor femoris. Many others are of value but cannot be detailed in a paper of this character. Operations to produce stability are sometimes very useful, such as stiffening the hip or the ankle joint. It is not wise to stiffen the knee joint, as this joint can be well controlled by a brace. In cases of very weak or flail ankle joint, the operation of astragalectomy, as perfected by Whitman, gives excellent results.

It is hardly to be expected that work of this highly specialized character will be of much interest in this general meeting of the medical

society, and no apology is needed for omitting further details, however fascinating the subject may be to the orthopedic surgeon.

DISCUSSION.

Charles A. Parker: From the orthopedic standpoint the optimistic feature is the fact that practically every case that survives the acute attack may eventually be gotten upon the feet and by means of operations and appliances enabled to walk. Crutches are at times necessary, but by proper treatment practically every case can be made more or less independent and saved from an enforced wheel-chair existence.

In many cases with limited paralyses little difficulty is encountered in obtaining these results and many walk in some manner without a physician's care.

As a fundamental principle in treatment, all deformities should be prevented or corrected as a preliminary to the employment of stabilizing measures, either operative or mechanical. The positions to be secured are an extended hip and knee and the foot at right angles to the leg both in the anteroposterior and the transverse relation. These corrections are usually readily accomplished by fairly simple means as tenotomies, myotomies and fasciotomies and the hip and knee easily maintained in their corrected positions. The maintenance of the foot in its proper position is much the more difficult problem. However, by the numerous means now at our disposal it can generally be very satisfactorily accomplished.

The severe deformities of the spine, paralytic scolioses, of themselves, rarely interfere with locomotion. They are very efficiently overcome by the use of a removable corset of plaster, leather or celluloid made over a corrected plaster of Paris torso.

THE MEDICAL ASPECT OF ACUTE POLIOMYELITIS.*

FRANK D. FRANCIS, M. D.,
CHICAGO.

The view must be very broad of a virus that may invade the human body and seriously damage it, especially its cerebrospinal system. The entire nervous system or any part of it, in any combination, more frequently the anterior horns, may default more or less, as the result of the infection which also may produce general symptoms and lesions in the glands, intestines, spleen, liver, lungs and kidney. The disease is regarded as communicable and infectious. It exists sporadically, epidemically and endemically.

In 1840, J. von Heine gave a recognized clinical description. In all probability the disease has existed for hundreds of years. As early

as 1784, paralysis, which occurred in teething children and those with bowel troubles, was described. The pathology was established by von Reinecker and von Recklinghausen in 1863. The first epidemic in the United States occurred in 1841 in Louisiana. Previous to 1905 but 890 cases of the disease had been noted. Since then epidemics have taken place with increased frequency both here and in Europe. Boston and New York have been the chief centers in the United States, but the states of Minnesota, Wisconsin, Illinois, Vermont, Massachusetts, Washington, Iowa and Pennsylvania have had epidemics, and nearly every state some cases. In 1907 New York had 2,500 cases. In 1916 New York had over 9,000 cases. It is now spreading in Ontario, Canada. In 1911 Illinois probably had as many or more cases than this year, from the death rate. So far this year Illinois reports over 760 cases. Over 250 cases occurred in Chicago. Thirty-six per cent. of Illinois cases outside of Chicago developed on farms. Sweden, Denmark and Germany have had epidemics, and in 1905 Wickham considered the character epidemic.

In 1909 Landsteiner and Popper transmitted the disease to monkeys by intraperitoneal inoculation with poliomyelitic cord. Later, Flexner and Lewis, using intracranial inoculation, had no trouble in reproducing and transmitting it through a series of monkeys.

The generally accepted facts are that the poliomyelitis virus is found in brain, cord, tonsil, nasopharynx, spinal fluid, stomach and intestines.

Flexner and Noguchi cultivated the virus and found very small bodies, single or double or in chains. The virus is filterable, resists glycerinization and is very resistant. Flexner regards the nasopharynx as the atrium. The nasal, bronchial and intestinal secretions may spread it. Carriers, human, horse and stable flies, mosquitoes, bugs, pets, etc., may possibly be disseminators. The human carrier seemingly is dangerous. The virus may remain months in the nose, as in monkeys it has remained six months.

Other workers have reported other findings. Dr. Mathers of Memorial Institute recently reported finding a micrococcus in six cases out of seven in brain emulsion. Dr. Rosenau has also noted a coccus. I believe also Drs. Herzog and

*Read before the North Side Branch, Chicago Medical Society, Oct. 13, 1916.

Nuzum at the county hospital have found a coccus in several instances.

In a series of 90 cases observed by me, the average age was four years, the youngest six weeks, and the oldest fifty years. The girls numbered forty and the boys fifty. August was the favorite month, 50 per cent. of the cases coming in the last two weeks of August. Over 10 per cent. of these cases were Jewish. Four of these cases were nursing babies. Two were on mixed feeding. Two were colored. In one instance only were there two members in a family, the second case following the first about 8 days.

In New York, out of a series of 7,000 cases, in 6,521 instances, there was 1 case, two cases in 205 instances, three cases each in twenty families, four cases in one, and five cases in another family. Fifty-five of the ninety cases in this series were three years or under. Four out of the ninety were over ten years. In this group most of the children were well nourished, clean, blonds, and well kept.

Several of the number had been bathing in the lake, but the great per cent. were too small for that diversion. The north temperate zone seems to be the choice of the infection as far as known. Mothers are very prone to assign catching cold, and falls or injuries and teething.

One attack establishes immunity, as a rule, and for many years. Second attacks have been reported. Sometimes it is associated with, or follows other acute infections. Personally, I lean very strongly to the idea that the virus may get in through the intestinal tract. In this group of ninety, the gastrointestinal factors have been prominent. In the Massachusetts group the intestinal features were prominent, while in New York the cases with sore throat, bronchitis and colds were frequent. Like the blind men feeling the elephant, each observer's attitude is affected by the class of cases he happens to be watching. The high degree of communicability in many places is hard to explain. So far, none of our doctors, nurses or attendants have become infected, nor is such a happening frequent from reports. Up to a few years ago poliomyelitis was admitted to general wards, with very few or any cross infections, on the part of the poliomyelitis. Sometimes a case occurs miles away from any other, out on some farm. Again, epidemics may take place in midwinter. Lice and bugs seem

not to get the virus on sucking the victim's blood. In this group of ninety cases I haven't seen over three nasal discharges. Cervical adenopathy, red throats, coughs and the like were very exceptional. Were it a bite, I would expect older children to come down more frequently. We know that children under three years old are seldom victims of the first case of contagion in a family, yet, here we have fifty to sixty per cent. of our cases in this age limit. Children under three years are not frequenters of the hot beds of disease. These children are largely home bodies. We do know that gastro-intestinal troubles are very common under three years. Food, milk, water, animal pets, toys and trade in sputum, qualify as factors for the young child as well as the older. Milk, food, and water factors especially apply to the children under three years. The mouth, rather than the nose, is the baby's storehouse. The tonsil and the gastro-intestinal tract follow in the track of the mouth. Very few of our cases have had inflamed tonsils. The nasal atrium seems hard to accept. The State Board of Health of Illinois reports similar paralysis in a proportion of cases among the domestic animals. Chapin, in Massachusetts, reports likewise. I exposed four roosters quite closely to infection with no results. Recently I have observed four postmortems and without the history of the case the gross diagnosis would be very doubtful. A little congestion of brain and cord, some enlarged mesenteric glands, some congestion in the bowel lining, some prominence of the gray matter of the cord or brain, were all the things you could see marked. The mesenteric glands would tend toward the intestinal idea. The incubation period is said to be five to sixteen days. One to forty days are given as extremes. The susceptibility to poliomyelitis does not seem great, much less than measles or scarlet fever, for example.

Symptoms: The symptoms are those of a wide spread or scattered poliomyeloencephalitis with meningeal involvement. Owing to the age of the cases, the onset description is lacking very often. Observant mothers have usually noted some fever, vomiting, constipation or diarrhea, loss of appetite, listlessness, hypersensitiveness and drowsiness. This coming suddenly on a child at this season, formerly well, should arouse suspicion. A physician may note the tenderness, a stiff

neck, pain on flexing the back and an ataxic gait. The patient often refuses to walk, and if they do, are easily tired and wish to be taken up. Convulsions may have occurred in some instances; paralysis is the first symptom noted. Older children may complain of headache and pain in the limbs, of a sore throat and perspiration. In some instances the patient is attacked with a high fever, a convulsion, or several of them, and then he is comatose, or in semicoma, for a few days, from which he rallies with a group of muscles, few or many, paralyzed. The fever may last for a few days but as a rule is of short duration.

From personal conversation with patients over ten years of age, the following stories of the onset have been obtained:

Case 1. Was in swimming. Noticed a stiffness in the chest. Got out of the water and felt better. On returning to the water felt the stiffness again. Went home and worked the next day but the arms were stiff and painful. The following day the right arm became helpless, and within twenty-four hours the left also. This case had marked tenderness in the arms and severe pains with the paralysis.

Case 2. Complained of pain in the feet, then the arms. Had a very severe headache and finally lost his voice, so that he could just whisper. In five or six days he had an almost complete spastic paralysis of the arms and legs with facial involvement.

Case 3. Complained of pain in the right leg. Considered it due to playing hard the day before. Had headache and felt drowsy. Next morning the right leg was paralyzed. The leg was very tender.

Case 4. The first thing noted was a chilliness, then a pain in the leg, which was paralyzed. This case stayed home from school to avoid it.

Case 5. Was very nervous, could not sleep, had a severe headache, could not hold head up, dizzy. Finally got to sleep and awakened with arm and leg involved in paralysis after the ninth day of illness.

Case 6. Had a headache and was constipated. Second and third day had a little sore throat. Felt better and tried to go upstairs and noticed he could not stand on his tiptoe, seven days after the onset. He could not walk upstairs very well.

Case 7. A fruit peddler, after a severe diarrhea of seven to ten days, noted that he had hard work to walk; his limbs pained and were stiff. He went to a doctor, who considered it a probable rheumatism. He went home and could not walk after that and rapidly developed a respiratory paralysis, causing death.

Case 8. (From intelligent mother.) Child vomited, no fever, was listless, it was hard to get him out of bed. Had to arouse him for feeding; was very irritable. The vomiting was persistent, nothing would agree with him. A physician was in constant attendance and

no fever ever noted. After three weeks of vomiting more or less paralysis of the right arm was noted.

Case 9. The child went to the country with parents for a day's visit. Vomiting and diarrhea followed the car ride, supposedly. Fever appeared and child became comatose. Four days later a facial paralysis was noted.

Case 10. Child was on a boat trip. The mother noted when she got off the boat that she staggered. Vomiting, diarrhea and a high fever followed, with an extensive paralysis of one lower extremity.

Clear mentality, headache, rigid neck, tenderness, hypersensitiveness and peculiar gait go especially with poliomyelitis. Other symptoms of any infectious process may be present,—vomiting, sore throat, diarrhea, perspiration.

The onset of paralysis in 100 cases in this city, according to Dr. Armstrong's data, was as follows:

Same day.....	4 cases	5th day after..	11 cases
1st day after..	13 cases	6th day after..	2 cases
2d day after...	25 cases	7th day after..	0 cases
3rd day after..	28 cases	8th day after..	1 case
4th day after..	14 cases	9th day after..	2 cases

One case under my observation had been sick for three weeks before paralysis developed.

Cases are not as a rule hospitalized before paralysis, so observations of pulse, temperature, respiration, blood and spinal fluid data are not available in our records. In over 180 cases in the hospital we have seen but one convulsion, and no coma. The highest temperature on entrance was 107° F. In a series of twenty cases the average temperature on entrance was 100.9° F. The highest respiratory rate on entrance was 40 in this series of twenty. The highest pulse rate was 160 with a temperature of 104.8° F. In the respiratory cases marked frequency of respiration is the rule, and before death may reach 80 to 100 in the medullary type. When the diaphragm and respiratory muscles are involved the respiratory rate is very slow and just a gasp takes its place. These patients may be kept alive for many hours by artificial respiration.

The paralysis may develop suddenly or it may develop slowly, extending one, two or three days. In one instance I saw it spread over ten days and in two others over five or six days. In this class the paralysis spreads from one group to another until the maximum is reached. Sometimes the paralysis is so complete that the patient lies mo-

tionless. At other times but one muscle is involved.

However complete the paralysis, it is quite characteristic of the disease that after a short time—three or four days to three weeks—the paralyzed muscles begin to recover. In some they do not. Any muscle of the body may be involved and the paralysis, as a rule, is of low motor neuron type. In encephalitis, meningeal and bulbar cases there may be spastic paralysis.

In one case of a series of ninety the motor oculi nerve was involved. Ptosis was seen but once. The external rectus was involved in one instance. The face muscles were involved in five cases out of ninety. The facial is very easily overlooked unless you cause the child to cry or laugh. The palate was involved in one, and in one only have the pharyngeal muscles been paralyzed. Ten could not hold up the head: eight had some respiratory paralysis; eight had paretic abdominal muscles. One had paralysis of the triceps only; one had paralysis of the deltoid only. One had paralysis of both deltoids only. Five had paralysis of all extremities with the exception that on one hand the fingers and on one foot the toes might be moved. Four cases had paralysis of both limbs and one arm combined. One had a left facial and a paralyzed arm and leg on the right. The most common paralysis is that of the quadriceps extensor. The perineal, gluteal and gastrocnemius paralyses are common. In a series of fifty, fourteen had a one-legged paralysis, nine a two-legged paralysis. I have seen no paralysis of the adductor of the thumb.

Paralysis of the arm is not exceptional. In a series of 50 cases the arms were involved in 12. Deformities developed early in some of these acute cases.

Rigidity of the neck is a common finding, as is tenderness on handling. Flexion of the spine is frequently painful.

Leucocytosis is a very constant feature, one of the most constant as to laboratory findings. I have seen no leucopenia. The leucocytes average 12,000 to 15,000 continuing often up to the fifth week. It is present with normal temperature, pulse and respiration. The differential sometimes reveals four to six per cent. eosinophilia, but in most cases the differential shows only polymorphonuclear leucocytosis. The low-

est count is 6,500, the highest 34,000. The urine is usually negative. Throat cultures for Kleb-Löffler are uniformly negative.

The spinal fluid is clear, the cell count of lymphocytes is increased; it averages 30 to 50 per cubic millimeter. The lowest I have seen on entrance to hospital is 3 and the highest 104. It may reduce Fehling's in about 50 per cent. of the cases. Increased pressure has been infrequent. The Nonne and Ross Jones' tests are positive in 60 per cent. of the cases. A coccus has been found in the fluid by Dr. Nuzum in eight out of nine cases.

The tendon reflexes of the paralyzed muscles are gone. The reflex may be gone and yet the paralysis not be complete, merely paresis. The gait of acute cases is very hard to determine for the great majority with leg involvement are unable to walk by the fifth week.

The facies of a patient very sick with poliomyelitis is quite characteristic. Often there are grimaces or chorea-like movements. The little patient follows your movements with its eyes, not moving its head. The eyeballs are often sunken and the color is ashen. The patient may have closed eyes while you are examining, be in a drowsy condition, but arouses easily. With delicate electrical instruments there is said to be found a disturbed sensation. Chills, convulsions and herpes are not often seen after entrance to the wards.

Abortive cases seldom reach the hospital. In epidemics many cases of meningitis with good recovery, influenza, gastrointestinal disturbance and cases of fever with no findings are probably poliomyelitis without frank paralysis. Some show a weakness if examined carefully. They probably comprise twenty-five to thirty per cent. of the cases.

In addition to the abortive and spinal type, anterior ascending paralysis (Landry's), bulbar paralysis, acute encephalitis, ataxic meningitis are recognized types, as classified by Wickman.

After the constitutional symptoms abate and the paralysis has reached its maximum, a period of calm comes which is tedious but which is often lightened by marked improvement. Some patients that could not walk begin to do so, others begin to sit up, but a few do not change much. In this time some atrophy, some contracture, may be noted. A few may remain very tender and the

respiratory cases are very slow to breathe correctly. The abdomen and chest seem to play "teeter-totter" with each other—the abdomen goes up and the chest goes down and vice versa, but the excursion of the abdomen is greater. The diaphragm alone carries on the respiration seemingly. Whether the paralyzed muscles ever completely recover I don't know.

Complications and Associations. Bowel disturbance has been frequent; diarrhea at some time occurred in 16 per cent. of the cases. Eight of this series passed macroscopic blood in their stools. Weight disturbance is a feature; six of this series lost weight to a considerable degree. Marked distension of the abdomen was noted in five cases. One of my series developed spasmodic croup. Herpes is rare; I have seen it but twice in looking over 180 cases. Impetigo was seen in one case. Bronchitis was seen in two cases. Pneumonia (lobar) appeared in one case out of 180. Contractions develop in two or three weeks in some instances and not in others. Retention of urine occurred in two cases out of 180.

One young man after four weeks in bed with a deltoid paralysis could not walk because he had kept his knees flexed. This cleared up in a few days. I have seen no bed sores on back. One head decubitus was seen.

Diphtheria germs were seen in one case out of 180. The gonococcus was found in three cases out of 180. Syphilis was present in two cases out of ninety. Scarlet fever was present in one case. Nasal discharges were seen in 3 cases, one with syphilitic snuffles. Gangrene of vulva was present in one case. Excessive perspiration and cold, paralyzed members were noted in 5 per cent. of the cases; otitis media in one case; abscess on chest wall in one case; dislocation of hip in one case.

DIAGNOSIS.

The sudden onset of paralysis or a weakening of the muscles of erratic distribution in a child in the late summer with symptoms of infection, is quite characteristic of the disease. This paralysis and the characteristic spinal fluid are two important diagnostic points of the paralytic stage.

The preparalytic diagnosis is suggested by headache, stiff neck, hyperesthesia, irritability, drowsiness, clear mentality and ataxic gait. These together with fever, perspiration, vomit-

ing, constipation, diarrhea, difficult micturition and defecation, sore throat, convulsions and delirium sometimes, make a very strong suspicion, which lumbar puncture may confirm. Early lumbar puncture should be resorted to, to diagnose before paralysis.

In the late cases, sluggish circulation, cold extremities, atrophy, lost reflexes, reaction of degeneration, and former history usually clear up the case.

Certain difficulties have arisen in differentiation, but as a rule no other diagnosis fits a case of poliomyelitis. Parturition paralysis usually involves the deltoid, biceps, brachial and supinator longus, synergistic muscles which poliomyelitis may affect. Both are lower motor neuron types and the picture clinically is the same. The history of birth injury, of the presence of the paralysis from birth and sensory disturbances which are rare, would speak for the birth trauma. Paralysis of some other groups of muscles and infection history, would indicate poliomyelitis. Hereditary ataxia may exhibit lost reflexes with no sensory changes and appear in children. The chronic course, several in a family, deformities of the feet, hyper-extended toes, would aid in the diagnosis of the ataxia.

The acute course of poliomyelitis with sudden paralysis afterwards improving or stationary differentiates it from cord affections with flaccid paralysis, atrophy, reaction of degeneration; but the latter are progressive and chronic. They are usually symmetrical, may occur in families and atrophy often precedes the appearance of paralysis. The atrophy in these cases is the much more prominent symptom. Paralysis is the prominent feature of poliomyelitis with atrophy secondary.

Acute diffuse myelitis presents bladder and rectal disturbance, bed sores and sensory alteration while atrophy and degeneration reactions are not features of prominence. Spinal meningitis does not present paralysis but stimulates the preparalytic stage of poliomyelitis of the meningitic type exactly. Lumbar puncture results might differentiate them. Tumors of the cord and brain usually develop slowly. Sarcoma of the cord may bring on symptoms with amazing rapidity and with fever. Sensory changes and localizing symptoms would aid in differentiation.

Dr. Marshall of Michigan called attention to such a case. Choked disc, local spasms, vomiting, pulse irregularity, late coma, convulsions, and a progressive spastic paralysis, would favor tumor of the brain.

Polyneuritis usually presents marked tenderness over the nerve trunks and cutaneous sensory disturbances, but the polyneuritic type of poliomyelitis would simulate it exactly. The causal factors, the history of infection, the course and progress of the paralysis would help to clear it. Polyneuritis is toxic and usually symmetrical. Poliomyelitis is an infection and usually not symmetrical.

The cerebral type of poliomyelitis could easily be mistaken for the cerebral palsies. The history of the case, the character of the paralysis, and the mental condition of the patient if the poliomyelitis came after infancy might be of aid. The infection phenomena are not a part of the palsies. The course of the two is different.

Hysteria, especially in the adult, is always a consideration. It came up in one of our female adult cases. The entire clinical picture must be observed, globus, crying, laughing, limited vision fields, absent pharyngeal and corneal reflexes, psychical conditions and unmotivated changes of nervous manifestations may permit a hysteria. I do not believe the hysteric can feign absent reflexes and reaction of degeneration. An anesthetic might clear a diagnosis if the paralyzed parts were moved during the second stage of anesthesia.

Hoover's test might be of value in a feigned paralysis.

Bell's palsy gives some trouble also. It is not so frequent in children as in adults. It is not an infection. The spinal fluid would not present the changes of poliomyelitis. This type of paralysis simulates poliomyelitis exactly.

Brain abscess may simulate poliomyelitis. The causal factors of an otitis media, the onset and course of the case, the mental condition and the clinical picture as a whole do not fit in with poliomyelitis. The paralytic features of abscess are seldom like poliomyelitis.

Meningococcal, pneumococcic and influenzal meningitis are made positive on finding the germs in the spinal fluid. Tubercular meningitis may be very difficult to differentiate in certain instances where tubercular meningitis starts

in suddenly and when the poliomyelitis is of the encephalitic and meningeal types. Tubercle bacilli may be found in the fluid by the Loeffler method. The cell count is usually higher in tubercular fluid. Primary tubercular foci may be noted in the lungs or pleura. However, the focus may be glandular and obscured. Choroidal tubercles may be found. The courses of the two are usually different, the tubercular usually being longer. The paralysis of a low motor neuron type also would point to poliomyelitis, but the encephalitic type of poliomyelitis would present a spastic type. A Kernig might be present in either one or the other instance. The von Pirquet and complement fixation tests for tuberculosis might be aids. The injection of a guinea pig with cerebrospinal fluid might clear up the diagnosis from the scientific standpoint, but for the case at hand it would be of no help. A case of poliomyelitis in a week's time is usually better or worse. As far as the acute phase goes, such a history for tuberculosis is not common.

Rickets and scurvy may cause a pseudo paralysis but examination of reflexes and positive findings of rickets or scurvy would clear them up.

Diphtheritic paralysis may be puzzling. It may simulate poliomyelitis in all particulars. The history of the case, possibly positive cultures and the presence of palatal and eye paralyses should put one on his guard. These cases of diphtheria usually recover sooner than poliomyelitis.

Typhoid fever may be simulated before the onset of paralysis. One of our cases was suspected of typhoid in the preparalytic stage which lasted a week. The headache, drowsiness, fever, bowel disturbances and general aching led one to think of typhoid. The cardinal points of each disease separate them.

Inflammatory rheumatism in children is frequently mistaken for poliomyelitis. Careful examination of the reflexes and joints would differentiate.

Lucs came up in several of our cases and was an accompaniment in two instances. Poliomyelitis does not give a positive Wassermann in the tests we have made. Lues is not so selective in its choice of anterior horns as poliomyelitis as a rule. The course and progress are usually not similar. Syphilis comes up for differentiation in the adult cases.

Trichinosis has been simulated in two cases. The blood count for eosinophilia and examination of a piece of muscle and the spinal fluid for trichinae clear up the cases.

Influenza, tonsillitis, beri beri must also be considered. Congenital myatonia (Oppenheim's disease) presents flaccidity and absent reflexes from birth.

Hip joint disease, dislocation of the hip, arsenical poisoning or other affections which careful examination of reflexes and degeneration reactions will clear up. Joints with atrophy and disuse of the muscles, casts left on for long periods of time, may look like poliomyelitis, but the reflexes, etc., would clear them up.

PROGNOSIS.

The prognosis as to life must be guarded. You never can tell when a respiratory paralysis will carry your patient away. This paralysis of respiration may develop very suddenly when a case has been progressing well. In two instances I have observed records of patient doing well or no change and death occur within a few hours. As a rule, you may say there is little danger to life provided the medulla oblongata is not involved, or the fourth cervical or its neighbors which supply the diaphragm. After the paralysis has existed six or seven days chances of death seem remote from poliomyelitis, but other things may claim your patient. Cases involving the glossopharyngeal, pneumogastric or heart centers must be prognosed very doubtfully. The average mortality of this series of ninety was between seven and eight per cent. Most of the deaths came between August 16 and August 31. In the last fifty cases there has been but one death. In some epidemics the mortality reaches twenty to thirty-three per cent.

Regarding recovery, improvement is the rule, but it is hard to prophesy concerning this. A little one muscle paralysis may show little improvement and an extensive initial paralysis may diminish greatly. It is said that muscles that show no reaction of degeneration after fourteen days will recover. At the onset you cannot say how extensive the paralysis will be. Usually the paralysis comes quickly and does not spread after a day or two. In three instances I have seen it spread after six or seven days of paralysis, and in one instance after ten days of paralysis. Recovery may continue for some months and per-

haps years. You may see a patient with four extremities paralyzed and speech affected nearly well in eight weeks. Another patient much the same may show little improvement, or even succumb with spread of the disease to the medulla. Bad omens are high fever, rapid pulse, restlessness, convulsions, coma—which is rare—severe ileocolitis, disturbance of respiratory muscles and inability to swallow.

Deaths in this series were as follows:

1. Child entered with a temperature of 102° F. and paralysis of one extremity. After six days in the hospital respiration began to increase and death occurred from medullary involvement.
2. A man entered the hospital at 8 p. m. after fifteen to sixteen days' illness before paralysis. He had a bronchial irritation. Death occurred inside of ten hours from respiratory and cardiac paralysis.
3. A child paralyzed in all extremities. Sick the fourth day; doing well at 3 p. m. At 9 p. m. respiration increased in frequency and death occurred the next morning from respiratory failure.
4. Gangrenous vulvitis with ileocolitis caused death on the sixteenth day.
5. Ileocolitis caused death after three week's illness.
6. Man sick three weeks. Paralysis of six days' duration. Could not swallow; ptosis and irregular pupils; paralysis of both quadriceps; urinary incontinence. Death with extreme cyanosis and rapid respiration.
7. Death with convulsions and temperature of 110° F.

PROPHYLAXIS.

Notification of the board of health, isolation of the patient, quarantine of contacts and disinfection are proper until we know more of the dissemination. The closing of supervised schools is doubtful. Funerals should be private. Children's parties, movies, Sunday schools, public halls and assemblies should be avoided by children. Persons to be avoided are convalescents, abortive cases and healthy contacts who may be carriers.

From experiments urotropin may have some value in prevention and I would be inclined to recommend it not only for its scientific value, but its psychic effect also. Anything but some mild oil would be irritative to the case in the long run. Hydrogen peroxide, 2 per cent. solution, kills the virus.

In view of the doubt concerning intestinal infection, it would be prudent to be sure of pure milk, pure water and uncontaminated food. Penny slices of melon, partnership candy, dirty cones, impure ice and ice cream, unwashed fruit

and vegetables should be guarded against. Children should be taught not to put foreign articles into the mouth. Sneezing and coughing might scatter the virus. The exchange of sputum is probably a great factor in most of children's ills. Visitation of sick children by well ones should not be tolerated. To telephone is safer for both parties. Pets, domestic animals, dust, flies, mosquitos, secretion and discharges of bowels, kidneys, eyes, nose and throat must be managed according to well known scientific principles. Exposure to long, cold rides in autos, or exhausting games may lower resistance.

The production of an immunity like smallpox vaccination, or typhoid, or against rabies, would be very fine if we had it. The rarity of the disease would make the procedure questionable, but the increase of epidemics may produce such a demand.

When we know the manner of spread I expect these measures will seem ridiculous. At present we never think of isolation, of trichinæ, yet epidemics may appear.

Carriers, convalescents and abortive cases should receive prescriptions appropriate to get rid of the virus. Keeping paralyzed extremities or parts in proper position may avoid later contractions and deformities. In Chicago cases are isolated for five weeks.

TREATMENT.

Absolute rest and quiet, hygienic measures, antipyretic by drug or hydrotherapy, analgesic, dietetic, symptomatic and expectant treatment are similar to any other acute infection. Frequent change of position, woolen stockings and undershirts with arms are proper. Following the absence of tenderness and pain, light rubbings and massages with warm baths are probably of help. Our children apparently did better when, after pain and tenderness had gone, they were allowed to try to use the affected members. Absolute rest is supposed to lessen spinal irritation. But to make a child under three years old rest, is a gigantic task which only splint or casts can accomplish, and even then they will try to move the cast, and in so doing, I imagine might put their spine or pelvis out of plumb. Observation in this series leads me to believe that power is obtained quicker, atrophy is less and convalescence shorter in the victim that can be gotten up after two or three weeks. When once

some motion returns psychic conditions are also much improved. A few children in the ward that are improving rapidly are a great help to the paralyzed. Imitation in children is highly developed. If all patients are kept in bed the little fellow remains quiet, but if a few are up he wishes to be up also. Electricity has not been tried in these cases.

Hemorrhage, edema, exudation and anemia pathologically account for some of the symptoms which may be transient and yet threaten life if near the center of respiration. Posture may influence edema and hemorrhage. The blood supply of the anterior cord comes mostly from the vertebral, which in the spinal canal is a long, slender artery, the outer longitudinal. With cord edema and hemorrhage it would be reasonable to think that the prone position with the head lower than the buttock might be safer. In the brain and cord, elevation of the head would seem reasonable. In respiratory cases propping them up aids some of them. Theoretically external applications to the spine might influence circulatory disturbances.

Exudation may be an indication for the iodides, but in my opinion not in the acute stage. Anemia of ganglion cells because pressed upon might be relieved by posture or by sending more blood to them. Increasing the blood pressure might accomplish this function. Dr. Meltzer's recommendation of adrenalin intraspinaly would be based on the idea of lessening hemorrhage, edema and anemia, it seems to me. Adrenalin increases the blood pressure, is a powerful heart stimulant and acts locally on the meninges and cord. Its action soon diminishes and the injection must be repeated in a few hours. Possibly adrenalin may have some specific effect in addition to its other powers. I have observed its use in a few cases only. In one instance there was apparently some good result from it. In another the pulse jumped from 66 to 136 and the result *in toto* was negative. Lumbar puncture may relieve increased pressure and thereby anemia. In no case have I seen marked evidence of an increased intracranial pressure, but it was marked in some of the New York cases.

Measures to kill the virus are uncertain. Urotropin in the canal is in an alkaline medium and powerless. In children urotropin causes hematuria quite frequently. I saw it in three

instances this autumn. Methylene blue injected into the blood or by mouth does not reach the spinal fluid. In ten cases we gave methylene blue before lumbar puncture but did not find it in the spinal fluid. The spinal fluid seems to be sacred and I doubt if many remedies given by mouth or hypodermically reach it. Injection of antiseptics intraspinaly has been recommended, such as protargol. Inasmuch as the virus permeates the cord and brain it is difficult to see how a local antiseptic can do a great deal.

Measures that would increase the opsonins, stimulate leucocytosis, locally or generally, increase bactericidal action and enhance agglutination or neutralize toxins of the blood, if brought to the cerebro spinal system, would be on the side of assets. Nonspecific proteins may increase leucocytosis generally, locally increase opsonin and increase bactericidal qualities. Under this heading comes serum from recovered patients. It has been shown that this serum contains antibodies often for many years. This serum is injected intraspinaly and intramuscularly or intravenously. It is done daily. It was used in seven of my cases. Judged by controls it was difficult to see a specific action. Other foreign proteids, as antidiphtheritic serum, antidyenteric serum and horse serum have been used. From observations of controls and lack of numbers of cases I could not recommend them with supreme confidence, but I believe the immune serum or the foreign proteids come the nearest to a treatment that we have.

In the respiration paralysis propping up on a pillow and adrenalin intraspinaly may give a temporary respite. From observation, a case of Dr. Hoyne's artificial respiration seems to work better than a pulmotor in conscious patients, and such cases of poliomyelitis usually are conscious.

In the future we must diagnose poliomyelitis before paralysis and use measures to prevent it. Whether this will be a serum, an antitoxin or a chemical, I do not know, but it is sure to come. The alternative may be to prevent it as we do typhoid, rabies, smallpox and diphtheria.

DISCUSSION

In answer to Dr. Churchill, we have used the immune serum in nine cases. This serum was used on very sick cases only, and the rate of mortality was high. It was given intravenously in some and both intraspinaly and intramuscularly in others.

In regard to emetin hydrochloride, Dr Tenney's re-

marks were most interesting to me. I have used it in two cases. The presence of blood in the stools of these cases led me to think of dysentery very strongly. This led to the use of antidyenteric serum, which, like any foreign proteids or possibly from some specific action, does produce a good result as far as high temperature, rapid pulse and respiration go. Paralysis is produced by the dysenteric germ in the instance of rabbits, as Shiga records in his article on dysentery. This I am able to confirm and in five instances caused a rather typical flaccid paralysis in rabbits with the Shiga organism.

INDICATIONS FOR DECOMPRESSION.*

WILLIAM H. PERRY, M. D.

STERLING, ILLINOIS.

The surgery of the nervous system has now become to a large extent the work of specialists and requires study, special training and special tools. There are, however, certain operations with which every practitioner should be familiar, and able to do in an emergency. In this paper I wish to call your attention to the *indications for operative treatment of skull fractures* and I will try to show when such treatment is necessary. To recognize the necessity and proper time for any surgical procedure is just as important as to be able to do it properly.

Some type of decompression is employed in every operation of brain surgery. Puncture of the ventricles or spinal puncture are almost of equal importance. The exposure of the brain is not now considered more difficult or dangerous than laparotomy. While this paper will deal with the symptoms appearing after skull fracture and concussion, let me say in passing that almost the same set of indications appear in brain tumor, abscess, and meningeal hemorrhage.

The number of skull fractures met with in our practice is certainly increasing. While this increase may be accounted for by the general increase in population, and the increased hazards of industrial life, I think a new element in our industrial and social life has been more prolific in accidents of all kinds and of skull fractures in the same ratio, than any other thing; I refer to the extensive use of the automobile. The cheaper they become, the more they are used. Every Monday of the vacation season and following other holidays the morning paper tells of the toll of lives taken and of the injuries sustained

*Read before the Tri-State Medical Society, Freeport, Ill., Sept. 23, 1916.

the day before. As we are certain to meet with emergency more frequently than ever before, I feel that we should take advantage of some things learned in brain surgery in the past few years and possibly conserve the lives of some of these unfortunate victims.

Kocher was one of the first to call attention to the significance of increased pressure within the skull following lesions of the brain. His classical paper on the stages of brain compression set forth a fundamental fact which he showed must be considered in establishing a rational treatment for all pathologic conditions within the skull. He states that increased cerebral tension from whatever cause is the great indication for decompression. Such being the case I wish to discuss the factors entering into the increased pressure and some of the untoward results of it.

A brief review of the literature of skull fracture for the past ten years does not give promise that past methods of treatment have been improving the mortality statistics. Ransohoff in 1910 collected 190 cases treated in the previous ten years at the Cincinnati Hospital. Sixty-five per cent were fatal, 10 per cent or 19 were operated upon with 7 recoveries. He is pessimistic regarding improvement in cases subjected to palliative treatment. Seventy-nine per cent. of fatal cases died inside of two days. Lumbar puncture was thought to be of value and decompression the best procedure. Besley in 1915 collected 1,000 cases treated during the previous ten years at the Cook County Hospital. Mortality 53 per cent. He calls attention to the fact that *seventy-three per cent of the fractures were associated with basal fracture*, although only in 33 per cent of the cases was it recognized clinically. This is an important observation, because if no depression is palpated it may not be thought necessary to do an operation. But if 73 per cent of all fractures extend to the base where hemorrhage may complicate and raise pressure, it may explain why some blows on the head thought to be trivial are fatal.

There is no record of the results of treatment, palliative or surgical, in this series of cases, but in a paper read several years ago by Dr. Besley a comparison of results showed a slightly lower mortality in these operated upon. In a personal communication he says that his experience is now "quite convincing, and that in the future he

will do more decompressive operations for symptoms that indicate increasing intracranial pressure regardless of whether that pressure is due to hemorrhage or edema."

Cushing says that "subtemporal decompression is often of great benefit, indeed actually life-saving in many cases of basal fracture."

Elsberg states that "patients with signs of fracture of the base as soon as signs of increased pressure appear should be subjected to a subtemporal decompression."

Heurer, of Baltimore, states that "the present opinion is that decompression is indicated, even though the lesion be a fracture of the base or of the vault without depression of fragments, in cases in which acute pressure symptoms are increasing, as indicated by changes in the state of unconsciousness, rise of blood pressure, slowing of the pulse, changes in the respiration, and that this procedure offers greater hope of recovery in his opinion than palliative measures."

Sharpe, of New York, states that "after a consideration of the literature upon the subject and as result of experience quite extensive, he is of the opinion that the operative treatment for selected cases of fracture of the skull showing signs of intracranial pressure, is far superior to the expectant treatment, and that the operation most suitable for these cases is the subtemporal decompression."

The brain is enclosed in the inelastic dural membrane. The falx cerebri is a downward extension of the dura enclosing the longitudinal sinus and forms a fairly strong partition between the hemispheres. The tentorium is a horizontal extension dividing the cerebrum from the cerebellum. When a lesion occurs in one of the three compartments thus formed the expansion is more or less limited for a time to that particular compartment and the symptoms produced are localized. In this way the cerebellum and medulla are protected from immediate pressure effects, due to lesions of the cerebrum, and as medullary pressure is the cause of the fatal symptoms appearing in brain trauma, it seems that nature has wisely protected it in a way. Outside of the dura is the rigid bony skull. It does not yield to increased pressure, except in childhood. hydrocephalus due to obstruction of outflow of cerebrospinal fluid will cause a separation of the sutures and an expansion of the brain cavity. Thus it follows in the adult that local areas of

increased pressure soon reach their limit of local expansion and the pressure then is transmitted equally in all directions according to the laws of hydro-dynamics. Unfortunately the structure of the skull does not give the desired complete protection to the important centers at the base of the skull. Recalling Besley's observation that 73 per cent of fractures reach the base, you will note that hemorrhage is liable to do direct damage to the most important part of the brain in about three-fourths of all such accidents. This may be accounted for if you will hold a skull with cap removed up to the light and you will find the horizontal plates forming the bases of the three skull fossae to be not much thicker than heavy wrapping paper. The effect of blows on the vertex or blows transmitted upward through the spine is to drive the condyles of the atlas into the weakest part of the protecting bones of the brain cavity. Fractures of the base and about the foramen magnum damage the most important vital centers of the medulla and in a great many cases cause death before any kind of relief can be given.

Another factor to be considered in connection with brain pressure is the cerebrospinal fluid. It is secreted by the choroid plexus in the third ventricle, passes into the two lateral ventricles or back into the fourth ventricle and thence through the foramen Majendie into the meninges and spinal canal. To a certain extent the brain and cord float in it. It is believed to re-enter the circulation by means of the pacchionian bodies and the cortical veins. Its amount is determined by many factors. Secretion and excretion may change its amount. Rising blood pressure, and lesions of the brain, especially traumatic, will increase it. When the amount does increase the lateral ventricles expand, the cortex is flattened out on the inside of the skull, causing anemia of the cortical cells. As a result signs of degeneration appear. Numerous small cortical hemorrhages have been found following concussion. Both factors are to be considered as a possible cause of the post-traumatic neuroses found in some cases of head trauma. These consist of persistent headache, dizzy spells, changed personality, depression, excitement, and general nervous instability.

The recognition of increased brain pressure is made by observing the state of consciousness, the pulse, respiration, eye and tendon reflexes, and

the use of the ophthalmoscope. The eye grounds exhibit the most reliable signs of cerebral tension. At first only a distension of the retinal veins, later a haziness of the disks, finally choked disks, with edema often obscuring the vessels.

Kocher has attempted to give a logical explanation of the effects of brain compression and has divided them into four stages:

At first the pressure, whether acute or chronic, expels the cerebrospinal fluid and as the brain tissue is incompressible like water, it compresses local blood vessels; thus reducing the amount of blood. The cerebral veins become dilated and a venous stasis results. This causes headache, drowsiness and possibly stupor. Retinal veins are much dilated. The first stage represents the individual's efforts to force sufficient blood into the brain to supply his needs.

In the second stage the pressure is still rising. If a local lesion such as hemorrhage is present the pressure is confined to that particular compartment. As already stated the falx cerebri and tentorium would protect the other compartments from immediate pressure. Should the fracture occur in the lower or occipital fossae there is at once extreme medullary compression with serious disturbance of respiration and circulation. Finally local pressure becomes general all through the cranial cavity and anemia of the cortex and medulla follows. The effect on the medulla is to produce a slowing of the pulse to 60 or less, and at the same time stimulation of the cardio-vascular center raises the blood pressure still more. Headache becomes more severe, delirium or convulsions may supervene, marked cyanosis is seen, and the ophthalmoscope shows dilated veins and edema of the disk. This is the favorable time to interfere. As long as the blood pressure is rising and the pulse slowing it is proper to operate. After the turn comes with a falling blood pressure, increasing pulse rate, and Cheyne-Stokes respiration, it is usually too late to hope for successful results. The third stage represents the major signs of medullary compression. The increasing intracranial pressure produces extreme medullary anemia and were it not for the regulatory mechanism of the circulation, death would follow. Fortunately the absence of blood stimulates the vasomotor center and the blood pressure is raised still higher to overcome the lack of blood in that important region. So that a temporary anemia is fol-

lowed by an increased motor activity of the cardiovascular system. Clinically this "down" and "up wave" presents a striking picture. The down wave due to medullary anemia results in a slowing of the heart down to 50 at the same time pulse is full and bounding, the respiration becomes slower and slower until it ceases for a time. It has been found that the blood pressure also lowers somewhat, the stupor becomes deeper, the pupils dilate and the reflexes are abolished. Then the vasomotor center is stimulated into activity again, with rising blood pressure blood is forced into the medulla again, the heart rate increases, respiration increases and breathing becomes more frequent as the respiratory center is supplied with blood. Double choked disks are seen and the veins of scalp and eyelids are engorged during this stage.

The fourth stage represents the final extreme medullary compression. The vital center becomes fatigued and after one of the down waves the respiration fails to resume. The heart continues to beat rapidly and irregularly as a separate organ, until the blood pressure falls to zero, when paralysis becomes complete, the pupils are dilated, muscular relaxation complete and death is inevitable.

Subtemporal decompression is designed to avert the untoward results of intracranial tension. Cushing's technique is now given in the later text-books. The dura should always be opened. Right sided decompression should be employed usually, except in left-handed persons, in order to prevent a hernia of the motor area of the cortex. The opening in the bone should be of generous size. Blood clots can be washed out from under the temporal and frontal lobes, meningeal hemorrhage checked and gutta percha drains inserted into the base, if hemorrhage cannot be reached. If depression has occurred at any other site, that site should be selected, the bone fragments raised, hemorrhage controlled and drainage inserted.

Double decompression is used by Elsberg more frequently than single and with better results. Occipital decompression must be employed for subtentorial lesions as the pressure is not relieved by operations higher up. Puncture of the ventricles is routinely done to remove accumulation of cerebrospinal fluid.

Conclusions: First, a lesion of the brain,

causing increased intracranial pressure, is the great indication for decompression.

Second: It is our duty to employ this procedure to relieve it, regardless of the cause.

REFERENCES.

- Besley: A Contribution to the Subject of Skull Fractures. J. A. M. A., Jan. 29, 1916.
 Elsberg: Surgery, Gynecology and Obstetrics, August, 1916.
 Kocher: Operative Surgery.
 Sharpe: Johnson's Operative Therapeutics.

FOCI OF INFECTION ABOUT THE TEETH.*

W. T. CLARK, B. S., M. D.,
 FT. ATKINSON, WIS.

The teeth and gums placed as they are in a constantly and abundantly infected cavity are admirably situated as atria of infection. The flora of the mouth probably consists of some thirty or more organisms. Miller placed it as high as one hundred. This large number exist in symbiotic relationship, upon their host normally, without causing harm, but it is readily seen that any slight disturbance in their relations, one to the other, or with their host, may readily lead to diseased conditions and invasion of the surrounding tissues and the blood stream.

The more important ones are the streptococcus, especially streptococcus viridans, staphylococci, pneumococci, Bacillus aerogenes capsulatus and the ameba. Noguchi has also isolated a spirillum. Hertzell has found the Streptococcus viridans in practically all apical abscesses.

Bearing in mind Rosenow's work on the transmutation of the streptococcus and the results he has obtained in producing such lesions as arthritis, endocarditis, gastric ulcer, etc., emphasizes the importance of the teeth with regard to systemic infection.

There are two principal modes of entrance about the teeth. First, that around the gingival margin, and second, through the pulp chamber and root canal.

The gingival margin entrance furnishes us first with gingivitis and second with pyorrhea. Gingivitis is an inflammatory condition of the gum around the tooth caused by the traumatism of food particles, and the resultant infection. This is the beginning of more severe trouble and is the stage which gives the warning signal for early care, by heeding which much more serious

*Read before the Tri-State Medical Society, Freeport, Ill., Sept. 23, 1916.

trouble may be avoided, as there is yet no destruction of tissue. There is first an abrasion of the mucous membrane which allows the entrance of infection. Black goes into the pathology of these conditions in which there is a deposit of calculus upon the teeth. He says that the deposit of salivary calculus causes marked destruction of all the surrounding tissues, including the bone; that these deposits are soft for the first fifteen to twenty-four hours and may be easily removed with a brush but soon become hard. The conclusion as to prevention is easily drawn. If our school inspection was more generally in use, and the children taught the advantages of proper methods of care of the teeth they would take their knowledge back into the home with wonderful results in the field of preventive medicine. The dentist and physician should lose no opportunity for instruction along these lines. The process is slow and the school age is the age of greatest tooth destruction.

The causes and treatment of pyorrhea are much discussed at present. Many contend for the ameba and emetin treatment while others say that the ameba has no causal relationship and that emetin is of no value. Certainly much of the ameba-emetin literature was premature and the burden of proof still lies with the sponsors. However, it seems that emetin is of value along with proper scaling. I am convinced that it will not cure but that with persistent treatment it will hold the process of destruction in check in the mild cases. It is unreasonable to say "cured" in the face of the pathological changes which have taken place, i. e., destruction of peridental membrane and alveolar process. Those cases which have advanced well up the side of the tooth and in which pus pockets have developed I do not believe can be made safe short of extraction of the tooth. A reasonable effort should be made to save these teeth. But again, our greatest field is prophylaxis. We cannot expect any form of treatment to reconstruct lost tissue. Lack of care, irregular teeth and poorly fitted crowns and bridge work are predisposing factors.

Apical abscesses originate usually at the apices of dead teeth from infection of the root canal, which is not entirely filled, or from the putrefying pulp which has not been entirely removed. The prophylaxis here lies with the dentist in using aseptic measures in the preparation of root canals and the development of a more perfect

method of properly filling them. It is needless to say that the dental profession is alive to the situation and a new era is being instituted in dentistry. These abscesses may also arise as a secondary infection by an obliterative endarteritis or from systemic disease or arteriosclerosis, phosphorous poisoning, etc.

Hertzell has found ten out of twenty healthy and practically all dead teeth bearing *Streptococcus viridans* at the apices.

Every dead tooth, whether filled, crowned or bridged, should be suspected of bearing an abscess unless otherwise proven by every test, including a radiograph. The slightest fraction of an inch of unfilled root canal is sufficient to account for an abscess. This does not necessarily reflect on the dentist's work as some roots are so tortuous, it would be impossible to fill them to the end. The practice of dentists who have conscientiously tried to conserve teeth by filling, crowning and bridging, we find has given rise to troubles of more severe nature than the loss of the teeth conserved and means a different viewpoint will have to be maintained with regard to the teeth in question. The consensus of opinion at present being that every tooth bearing an abscess or granuloma should be subjected to immediate extraction or root resection if there are systemic symptoms. Both of these procedures are based on sound surgical principles. If not causing systemic symptoms, and the patient can afford treatment at the hands of a specialist, the tooth may be conserved, but if it is not possible to clear up the infection it should be subjected to radical treatment. In other words all foci of infection should be cleared up whether causing noticeable trouble or not—and I say noticeable advisedly—because many times a patient is not up to par and is not conscious of the fact because he has been below par so long that he has become accustomed to it, but upon removal of a focus of infection he is relieved of some condition with which he had lived so long that he considered it normal.

We all recognize the care required in entering a joint in other parts of the body and yet the pulp chamber and root canal of a dead tooth, situated in an infected cavity, has been entered with very little attention to asepsis. We must also bear in mind that a dead tooth is a foreign body, as by the destruction of the peridental membrane the normal relationship of tooth and

process has been disturbed. It is only by consideration of all these conditions that we are able to appreciate the great task that rests with the dental profession in dealing with dead teeth. To treat a dead tooth properly is a delicate and exacting piece of work which will require more time and will be much more expensive. Consequently, it is going to require an immense amount of education of the public to enable them to realize the importance of, as they consider it, "simply filling a tooth." Here again we can be of aid in pointing out the importance of having the work done properly, if at all.

The results of these conditions are what we as physicians are interested in and when we find such an array of diseases, some of which have been obscure in their etiology, not only traced to focal infection somewhere, but as has been done in many instances, traced directly to the teeth and cure obtained by proper treatment, it behooves us to make a practice of a thorough routine examination, including an x-ray of the tooth, and much closer association with the dental profession becomes imperative.

The role of the teeth in rheumatism has been definitely proven. The chronic arthritides also have been traced to the teeth and been cured by removal of the foci of infection. Tonsils have been found to harbor the ameba and clean up when a co-existing pyorrhea was relieved. Secondary anemia, appendicitis, colitis, cholecystitis, gastric and duodenal ulcers, iritis, sinusitis, and nephritis have all been proven to be due to focal infection. Some skin diseases such as erythema nodosum, herpes zoster, etc., come under this heading and recently Rosenow has reported some very interesting results on "Elective Localization of Bacteria in Diseases of the Nervous System." Among the diseases included are transverse myelitis, multiple sclerosis and multiple neuritis, neuralgia and sporadic anterior poliomyelitis.

Craig, I think, reported twenty cases of melancholia which showed no improvement until a co-existing pyorrhea was cleared up. I am at present observing a melancholia which had a very severe pyorrhea and badly infected tonsils. Rheumatism and pneumonia are among those diseases which have a tendency to recur. Hertzell reports a case of pneumonia coincident with the removal of the bicuspid yielding the *Diplococcus pneumoniae* in large numbers. This surely suggests that we should at least try to discover a

focus of infection in those who have had one or more attacks of pneumonia, realizing that the infection may be constantly carried, requiring only a lowered resistance to cause a transmutation or increased virulence in the culture already at hand.

The importance of the radiograph may best be realized when we consider that a tooth does not need to be giving pain or even be sensitive to pressure to give rise to systemic absorption and it is only by means of the x-ray, in addition to the usual diagnostic methods, that such abscesses may be diagnosed.

The x-ray is not infallible and too much has been expected of it, but it is absolutely indispensable. Some seem to forget that the radiograph must necessarily depend on some alteration in the density of the bone, thereby giving a difference in the shadow cast, that is, some decalcification must have taken place in order to show a change. Sometimes it does not show an abscess or granuloma where one is present and it may show an area of rarefaction where no infection exists. In our enthusiasm to locate the focus of infection, we must not forget that the mouth, as the seat of disease, may not be the cause, but the result of general conditions such as syphilis, diabetes, etc. Such possibilities serve to emphasize the great interdependence of the dentist and physician.

In view of the unsettled opinion as to the value of vaccines and our present lack of knowledge as to what element of the vaccine is of value, if at all, in the light of Rosenow's work upon the transmutation of bacteria when removed from the original host and placed upon artificial culture media or upon another host, and bearing in mind that upon the removal of the focus of infection, there is a reaction in the secondary foci of infection, I venture to suggest that in so far as possible we use the vaccine in the original site. In this way, it would seem reasonable to suppose that we would get the utmost liability of clearing up secondary foci which might be undiscoverable or inaccessible to elimination. In illustration of this point, I wish to report the following case, with the full realization that "one swallow does not make a summer" and that it is often fallacious to reason from premises based on a single case.

Mrs. B., aged 56 years, came to me complaining of pains in the chest. They were neuralgic in character,

covering the whole thorax, with a tender spot in the dorsal spine. Chest findings were negative. Upon examination I found eight lower teeth remaining badly affected with pyorrhea, all of which were beyond hope of preserving. She had pain and tenderness over the gall bladder and appendix and considerable digestive disturbance. These conditions were all of from six to fourteen years' standing. I advised the extraction of two teeth at a time at intervals of about two weeks, and she did as directed, but lengthened the periods between extractions to three to six weeks. After the extraction of each pair of teeth, she experienced a decided aggravation of all symptoms related to the spine, thorax, gall bladder, and appendix. After having the last two teeth extracted she was in bed for several days. Since that time her symptoms have cleared up entirely and her general health is much improved.

White says that all foci should not be eradicated at once for two reasons, first that cultures may still be obtained for making vaccines if there has been a failure to get a culture at the first attempt, and second in order not to overwhelm a patient unable to bear the severe reaction due to the elimination of all foci at once. I would give as an additional reason the hope that it may arouse sufficient reaction to clear up secondary foci of infection. This is offered as a suggestion to be proven or disproven by more complete observation.

ON THE CLINICAL ASPECT OF CARDIAC INCOMPETENCE.*

GEORGE RICHTER, M. D.,

Professor of Medicine, National University; Visiting Physician,
City Hospital.

ST. LOUIS, MO.

An insufficiency of the heart's action will occur in the moribund. It is the cause of death in possibly one-half of all the cases. Incompetence of the heart appears in the large majority of cases of protracted illness, in acute and chronic infectious diseases, but also in those afflictions which we may combine under the name of wasting, constitutional, degenerative diseases, anemias and cachexias. In all such, however, other symptoms arouse our attention much more than the condition of the heart.

What I wish to describe and analyze is that stage in which an unsatisfactory function of the heart appears to be of pre-eminent importance, in which clinical observation makes us assume

that reestablishment of efficient function would save the patient.

Heart failure may be recognized by the general appearance of the patient: we can differentiate it from other, similar disturbances even on a superficial survey of the case. The face is usually pale with a yellowish tinge; lips tongue and finger tips are cyanosed. Slight edema below the lower eyelids, also about dependent parts of the body. Breathing is uneasy, often irregular, yet not so labored as in bronchial asthma; there is no prolonged expiration, no stridor, no wheezing. Dyspnea becomes more marked on exertion, particularly at attempts to hold a conversation. The cough, though usually moderate, is exhausting, expectoration often frothy and may show strings of blood, or appear thick, muddy, rusty from an admixture of blood. The expression of the face is characteristic, a distress, an anxiety quite different from that in bronchial asthma. The skin may be covered with a cold perspiration. The patient is restless but feels that every movement aggravates his condition. Carotids pulsate visibly, jugular pulsation is much in evidence and of special interest to us. The veins on the arms are prominent. A sitting posture is sought, with the body bending forward. He may complain of pains in the region of the heart, in the left shoulder and arm (mistaken for rheumatism), in the epigastric region with a desire to belch, or also in the region of the liver, which together with a slight jaundice has been diagnosed as cholecystitis. A herpetic eruption on the inner aspect of the arm is rare but typical. Gastric troubles are occasionally due to injudicious medication. Palpitations are not always complained of. The symptoms due to angina pectoris and to heartblock complicate matters still further, but cannot be dwelled upon at present. Cardiac asthma occurs in the form of attacks of rapid breathing, lasting a few minutes and repeating after short intervals, while in angina pectoris respiratory excursions are small, and in heart block the Cheyne-Stokes type of breathing more frequent.

The sufferer is apt to be very irritable, even irrational, particularly on awakening from a much disturbed sleep.

The edema mentioned before is usually local, found at the dependent parts, in the bedbound about thighs, buttocks, lumbar region. It is due,

*Read before the Southern Illinois Medical Association, Nov. 2, 1916.

of course, to venous stasis, as also an occasional ascites, when the liver is engorged. The edema may vary on successive days and disappear from the subcutaneous tissue to persist in the muscle substance, imparting to the same a peculiar firmness against the flabbiness of other limbs.

The Cheyne-Stokes type of breathing does not mean an absolutely grave condition, but it is annoying to the patient. It occurs when he would fall asleep and awakens him to full consciousness.

The pulse is often bounding, soft, or hard or thready, not always irregular in force and rhythm.

On percussion we discover dullness at the right side of the sternum corresponding to a dilatation of the right auricle, proven by pulsating jugulars. Dilatation of the right ventricle produces epigastric pulsation of a more diffuse character than that due to a pulsating abdominal aorta in neurasthenia. It may simulate a pulsating liver. Dilatation and hypertrophy of the left ventricle displace the apex beat towards the axilla.

On auscultation we may find a variety of murmurs which are not always referable to valvular disease. Great dilatation and weakness of the muscle ring around mitral and tricuspid valves prevent exact closure resulting in a leakage, and thus a diagnosis by auscultation becomes difficult.

One or both of the lower lobes of the lungs will exhibit some dullness due to congestion with rales, becoming universal in pulmonary edema.

The liver is frequently enlarged and tender on palpation.

Urine is scanty, high colored, rich in uratic ("brick dust") sediment, of high specific gravity with more or less albumin and usually few casts, except in a complicating active nephritis. There is always urobilin present (not often bile pigments) and diminution of chlorides.

In the scanty sputum we discover the characteristic heart disease cells, but rarely pus cells. Microscopic examination of the blood reveals little of interest, while the chemical contents may be much altered in proportion. This examination, however, is not within the scope of the general practitioner.

All these symptoms vary, of course, in intensity and are not combined in every case.

The one chief cause of all of this is exhaustion of the heart muscle.

The exhaustion may be due to overwork. Increased work of the heart from increased resistance in the periphery, *f. i.* in arteriosclerosis, in very long continued muscular over-exertion, in gross valvular defects or stenosis. They lead to dilatation and hypertrophy, which at first compensate the fault. During the period of compensation a person may have marked valvular alterations with concomitant changes in the pulse and loud murmurs, yet enjoy health and be able to perform all the work ordinarily imposed upon him. During such a compensation there is no call for any other but hygienic measures and all medication is distinctly harmful.

Though the well compensated hypertrophied and dilated heart may still possess considerable reserve power for occasional increased tasks, there is without any doubt a limit to it; great additional labor will induce a breakdown, initiate an incompetence.

Myocarditis is by far the most frequent cause of heart failure. An infection which sets up an endocarditis with valvular disease will practically always also attack the myocardium, the heart muscle.

A myocarditis without endocarditis is apt to follow diphtheria, typhoid, pneumonia and very frequently influenza. Sudden death from this cause is not rare after diphtheria. Syphilitic myocarditis with its slow and insidious progress may remain occult for a long time.

Myocardial degenerative processes are usually focal. Plasma-cell exudates are converted into strands of connective tissue, displacing and weakening muscle fibers, interfering with proper contractions.

Also adipose tissue in the obese may crowd the contractile substance.

Now let us see, how an incompetence may proceed in developing such symptoms as just enumerated. It will help in understanding the situation and give us ideas as to rational treatment.

Take a case of aortic regurgitation from extensive valvular destruction. The left ventricle propels the blood into the aorta with each systole. Diastole sets in. The aortic valves don't close properly, some blood rushes back into the left ventricle. Simultaneously the contents of the left auricle are forced into the left ventricle, which receives more blood than normal, dilates and, in order to expel this increased

content hypertrophies. The left auricle in its effort to empty itself into a partially filled ventricle meets increased resistance. It dilates and hypertrophies, but not to a great extent, not enough to perform the increased task completely. Therefore, back-pressure blood begins to dilate the capillaries of the lungs. The systole of the right ventricle throwing blood into the lung circulation meets an increased resistance from the blood damming up there. The right ventricle dilates and hypertrophies. This affects the right auricle which finds increased difficulty in emptying itself into the right ventricle. The right auricle bulges and now the blood from the cava veins encounters a positive instead of a negative pressure. The venous flow is impeded. The blood is forced back into the jugulars, it fills the liver, the abdominal organs, the kidneys, etc. The surface veins swell up. Capillary circulation is sluggish, re-acting back upon the arteries and thus increasing blood pressure in spite of a weak heart.

Exactly the same history may be given for the other valvular defects. Those of the left heart must necessarily affect first the lungs while those of the right heart must show their primary influence upon peripheral venous stasis.

In myocarditis we may expect a combination picture with a preponderance of a more manifest weakness of the right heart with its thinner walls.

But this does not take place simultaneously everywhere nor in the same sequence. It is well known how the blood supply to the various organs changes according to temporary functional requirements. The vascular apparatus of the lungs is regulated rather by the energy of the right ventricle than by vasomotor influences. The supply to the brain varies very little. The two principal reservoirs of the blood which have a function to compensate each other are the vessels of the body surface, regulating body temperature, and those of the abdominal viscera, large enough to eventually hold the entire blood content of the organism. Either territory is regulated by the autonomous nervous system, the vagus and the sympathetic, independently of the heart itself. The heart propels certain fixed amounts. These are distributed unequally to the various organs, conforming with their temporary needs. Hypertrophy of the left ventricle

associated with certain diseases of the kidneys indicates a special co-ordination between the two organs. The condition of the walls of the vessels merits attention. When organic functions have become impaired the blood itself is altered. It damages the endothelial lining of the vessels, renders it more permeable to serum—edema. And this again may be local or universal, while the now altered condition of the tissues in general, of the kidneys especially, accounts for albuminuria, retention of chlorides, urea, creatinin and other products of metabolism, causing more damage.

We may now attempt an explanation of the various symptoms in detail.

Dyspnea is the first symptom, manifest on exertion like climbing stairs, prolonged conversation inducing an increased pulse rate. How is this to be explained? The needs of the organism call for the oxygenation of a certain amount of blood within a unit of time. The weaker heart throws less blood into the lungs, less is oxygenated. Absence of oxygen stimulates the respiratory center, forcing an inhalation earlier than before. Air hunger—dyspnea. Deep inspirations are prevented by rigidity of the congested lungs, the crowding by a dilated heart or also by an enlarged liver. The faster heart action tends to compensate for this.

These facts furnish an excellent test for the heart function, by noting the exact time in seconds during which a person can hold the breath, which should be at least thirty seconds. With an incompetent heart this time is very materially shortened, and again increased on convalescence. In estimating the heart's condition by the pulse rate, psychic factors must be considered and estimated.

Venous pressure is estimated by observing the veins on the back of the hand. On elevating the latter to the height of the heart, or a trifle above it, these veins should collapse. If not, then there must be an increased pressure at the right heart.

Another important method of testing the force of the left ventricle, is acquired only by some practice. It consists in palpating the apex beat and determining the force necessary to suppress its propulsion. Even a very pronounced apex beat is compatible with a weak heart, when intercostal spaces are wide, thin and muscles

weak. Blood pressure is no reliable indicator for the heart's power. Pressure may be very high when an increased peripheral resistance (in edema) or contracted arteries oppose the blood current.

The congestion of the lungs may be the result of a very slow process. There is an increase of interstitial connective tissue. Capillaries bulge out into the lumen of the alveoles. Red corpuscles and some leucocytes emigrate (diapedesis). The erythrocytes are taken up by desquamating alveolar cells and leucocytes; phagocytosis, digestion of the reds is begun, hemoglobin is broken down and partially converted into hemosiderin, visible as brownish-yellow enclosures of irregular size and shape within the cells, without previous staining: the "heart disease cells." It is quite interesting to look for such cells to differentiate between an ordinary bronchitis or asthma, and the above described condition; "brown induration of the lungs." In the latter case expectorants are of little avail: the heart must be treated. As to pulmonary edema I must refer you to the text books.

In another series of cases the lungs suffer little, as in primary disease of the right heart, excepting through a diminished supply of blood. Dilatation of the right ventricle prevents prompt closure of the tricuspid, blood walls up in the jugulars, in the veins of the body. The liver becomes engorged, swells, tears on the peritoneal capsule, causing pain; bile capillaries are occluded, bile is absorbed, a slight icterus appears. Portal circulation suffers; ascites is noted. All the vessels of the mesentery are over-filled. Absorption is diminished. As a sign of parenchymatous liver trouble urobilin (not bile pigments) shows in the urine. But the visceral symptoms are not only the result of mechanical processes, they are much aggravated by vasomotor phenomena. These vasomotor signs I believe to be due partly to an overcompensation, partly to an exhaustion of regulating functions. When the venous system is engorged, arterioles of the skin (and elsewhere) contract, to keep up the required pressure for the blood to circulate at all. The sluggish circulation in all the viscera affects also the suprarenal glands, less adrenalin is offered to the system. Normally adrenalin constricts the vessels of the viscera; here it fails.

Congestion of the liver from an incompetent heart is probably more frequent in those whose liver furnishes a place of diminished resistance, in those who have had severer infections, or who have been living high, indulging in excess of food, alcohol, or who have had a lack of exercise. Hemorrhoids occur very often.

Another class again is that of the cardio-nephritics. Hypertrophy of the left ventricle, general edema, marked albuminuria with all kinds of casts, eventually with uremic symptoms. It is not at all easy to state whether the trouble was primarily cardiac, or primarily nephritic. We may often assume that the same infection which attacked the heart, also infected the kidneys. In these cases cerebral symptoms may be found, due to a localized edema of the brain, or focal arteriosclerosis, with pathologic reflexes (perhaps only on one side); Babinski, Chaddock, missing patellars and Achilles, unequal pupils, etc.

An incompetent heart favors formations of thrombi with subsequent embolism, as infarct of the lungs. Angina pectoris, heart block may be added to the general picture. They simulate pneumonia, pleurisy, asthma, cholecystitis, gastric crises and a number of similar conditions. A careful analysis of the symptoms should guard us against such harmful errors.

The prognosis is in many cases much more favorable than is generally assumed. It depends less upon the condition of the valves than upon that of the myocardium. And myocarditis is by no means always a hopeless condition. Of course, he who would fill the patient indiscriminately with digitalis will have poor results. Properly administered it may prevent an incompetence, but in heart failure it is apt to prove a failure.

To treat an incompetence we will have to consider the condition of the heart and the complications, which we may expect to improve materially together with an improvement of the heart's actions.

Where the substance of the heart is not materially impaired, where it is simply exhausted from overwork, like a tired skeletal muscle, remedial measures which strengthen the heart are indicated.

A tired organ needs rest. Comparative rest for the heart is sought by relieving it as much

as possible from unnecessary work. The latter may have been imposed upon it by consuming too much liquids, by irregular contractions and by too high a blood pressure, often due to increased peripheral resistance (in general edema), unnecessary work may also be caused by contracted arterioles, by roughened surface of the arterial wall, by increased viscosity of the blood, by circulating toxins (nicotin), by the rather mysterious relations to the kidneys, and of course also by irreparable valvular disease. Finally also, and this is important, by mental excitement, by worry and cares, in those of an excitable, "nervous" disposition.

Besides rest a tired organ needs proper food to supply what had been wasted. Such food can be furnished only by proper circulation of blood in the walls of the heart, through the coronary vessels.

Where the heart is not only overworked but has suffered damage from inflammatory processes in myocarditis with degeneration and loss of contractile fibers (or also interference with conduction of stimulus) we must hope for the formation of new fibers to make the loss good. Experience gained in hypertrophy renders such a possibility plausible.

How can we meet these indications? Only a general sketch can be given. Where symptoms are so much interwoven, no detailed advice is possible.

Rest is by far the most important. Anything increasing the heart-rate is detrimental, therefore all worry is very harmful, and its opposite, cheerfulness, a great aid in treatment. Absolute bodily and mental rest, aided by bromides, enforced by opiates!

With convalescence carefully graded exercise will re-establish more energetic functions.

Irregular contractions call for digitalis and similar drugs. Digitalis is most helpful in disturbance due to the vagus. But only too often does it fail to give the expected result. It will disappoint in gastric disorders and in engorgement of the liver. Too slow an absorption, too long a stay in the sluggish portal circulation and within the liver prevent it from reaching the heart unchanged.

Here rectal medication should be tried. Tincture of digitalis, Digalen, or tinct. of strophanthus injected into the rectum above the

external sphincter reaches the lower hemorrhoidal plexus, thence the cava inferior and the heart on the shortest route. Injection higher up would let it enter the upper hemorrhoidal plexus that empties into the portal vein.

The hypodermatic route is too painful. Intramuscular injections are less objectionable.

Most wonderful, almost instantaneous results are achieved in appropriate cases by intravenous injection of strophanthin. The effect lasts forty-eight hours, after which the dose may be repeated.

But where an extensive myocarditis has weakened the heart muscle, it must not be whipped up by such remedies, which then fail. Relief can be obtained here by rest, proper food and untiring patience.

The only food for the heart is glycogen, forming from carbohydrates, from sugar. It should be furnished in abundant, digestible amounts.

Fluids must be restricted. Every drop absorbed is propelled by the heart. On such restriction the "Karell Diet" is based, with which the patient receives only one-half pint of rich milk four times a day and absolutely nothing else. It is particularly useful in general edema. On the third day of this rather cruel starvation diet an abundant diuresis usually sets in spontaneously. It is a practically salt-free diet and to be recommended.

A general edema is also promptly relieved by intense sweating, thus reducing peripheral resistance and relieving the heart of that much of a load. Pilocarpin should be used with great caution. Dilatation of the vessels of the skin dilates those of the kidneys and favors diuresis. Chilling the skin is therefore dangerous.

Purges are apt to weaken the patient. With this form of elimination not only much of the food eaten, but also much of the patient's strength, is carried off.

Diuretics also disappoint frequently. At times they set up a gastritis. In persistent edema of legs (or universal) relief is obtained by drainage with Southey (Curschmann) trocars, or multiple incisions of the skin, aseptically of course; as much as one or two gallons may flow out in 24 hours.

The universally praised calomel is a kidney poison and must be avoided in nephritis.

To regulate the vasomotor apparatus in a cer-

tain direction, namely, as far as the sympathetic proper is concerned, we have at our disposal an ideal drug, adrenalin. It constricts the visceral vessels, lifts the sunken blood into circulation, dilates the coronaries and insures a proper nutrition of the heart; fifteen minims (1:1000) may be injected every hour if necessary. Here its effect on blood pressure does no harm.

The most alarming symptoms, if associated with hypertension and cyanosis, are promptly relieved by venesection, drawing 8 to 16 ounces of blood. One must have witnessed it to appreciate its miraculous effect.

In other cases a hypodermic of neutral camphor in oil, 3 grains, often repeated, has been lifesaving. Strychnia is helpful, but not very reliable.

By all such measures a hypertension is usually relieved. But a high tension may be necessary to maintain kidney function. As a general rule very low blood pressures give a bad prognosis.

Metropolitan Building.

HOME TALENT.*

GEORGE K. WILSON, M. D.,
STREATOR, ILL.

At a meeting of the La Salle County Medical Society several years ago at which the attendance was excellent, a member arose and said that he desired to express his appreciation of the excellent program and attendance and that he also desired to say that one of the things that made for an interesting meeting was the reading of papers by men from outside the county; that he had observed that the members would not attend to hear a paper by one of their own number.

To conform to this idea of an interesting paper, I bring a little from the world's first essayist of whom it has been said "He was one of the profoundest thinkers, one of the keenest observers and one of the most learned men the world has ever produced."

He said, "Studies themselves do give forth directions too much at large except they be bounded in by experience. They teach not their own use, but there is a wisdom without them and above them won by observation."

Of medical studies nothing could be truer. We may study and study, but if we do not practice and gain experience by observation the studies

are largely without value because of their generalities.

Doctors of medicine begin practice with the same knowledge, that is, they begin with all they could glean from a prescribed course of four years of studies. The paths diverge. At the end of one year or of ten years, the members of a class that were together for four years with the same studies, developing the same ideas and learning the same facts, present no two members with the same experiences or the same observations.

It increases the knowledge of anyone to meet any other and exchange experiences and observations. In fact this is the way medical knowledge is accumulated. Experience and observation added to the studies increase the store.

The experiences and observations of a La Salle County man or of a Streator man should be as interesting as those of any other county man, and should not be held in contempt by Streator or La Salle county as manifested by lack of attendance at a society meeting.

To hold in contempt the words of a contemporary is perhaps as old as the beginning of thought. It is not new and today we may be losing as much in La Salle county and in Streator by maintaining this attitude as did the contemporaries of a thousand and one immortal men we might name beginning with Noah and coming on down through the centuries.

Leaving the advantage to be gained by the general profession by listening to the experiences and observations of all members, let us turn to that which is to be gained by the individual in the telling of his experiences to others.

Again we go to our friend, Lord Bacon:

Whosoever hath his mind fraught with many thoughts, his wits and understanding do clarify and break up in the communicating and discoursing with another; he tosseth his thoughts more easily, he marshalleth them more orderly, he seeth how they look when they are turned into words; finally, he waxeth wiser than himself, and that more by an hour's discourse than by a day's meditation.

Neither is opening the understanding restrained only to such friends as are able to give a man counsel; they indeed are best, but even without that, a man learneth of himself and bringeth his own thoughts to light. In a word, a man were better relate himself to a statue than to suffice his thoughts to pass in smother.

It has been well said by a member of this club that the man who gains the most by the presenta-

*Read before the Streator Medical Club.

tion of a paper is the writer himself. It makes him think, it makes him observe and if this club should become a real, live, successful club, Streater would have a better class of practitioners and each one of us would have more interesting, agreeable and valuable contemporaries.

And so we might continue philosophizing, but this is a medical paper. A case has been selected for report tonight, not because of its intrinsic value, perhaps, but merely to illustrate the truism that one should look in his own dooryard for the wonders before searching the world for the four-leaved clover.

The case, so far as I am informed, is the only one of its kind that has ever been observed in all the world in all time.

When a medical man desires to make such a statement, he goes to the medical literature and searches for the report of such a case. I have not read of such a one in my own library and it is too inconvenient for me to search the larger ones. However, I have a reprint of a paper written by Dr. Reuben Peterson in 1905 in which he intimates that he has searched the literature for cases of migratory uterine fibroids. He abstracted the twenty authentic cases he found, and added three more. In going over these cases I find not one like unto the one of tonight.

Two years ago a childless woman of sixty years came complaining of a pain down the back of the right leg.

Examination revealed a large pelvic tumor.

Shortly afterwards this patient came to operation and a hysterectomy, leaving the cervix, was done. Two tumors were found. One, a large one, being situated in the posterior uterine wall; the other, the size of a small orange, appeared as a tumor of the right ovary with no other attachment except a frail, cobweb adhesion to the small intestine.

Microscopically the uterine tumor was an ordinary myofibroma; the ovarian tumor revealed no ovarian tissue or derivative of ovarian tissue, but did resemble the structure of uterine tissue, that is a uterine fibroid, even though to all appearances the tumor was a direct outgrowth of the ovary.

To the general practitioner this perhaps has no significance; a tumor is a tumor; but to the pathologist this would be as strange as it would to the agriculturist to dig his potatoes and find beets in the hills. A farmer, in his right mind, can always distinguish a potato from a beet, and so a pathologist should always distinguish between a section of ovarian tissue and one of uterine tissue.

As the farmer might "reckon as to how" a potato could produce a beet, so the pathologist theorizes how a uterus can be the outgrowth of an ovary.

He might first think of inclusion; that is, in the process of fetal development a few of the cells that were to become uterine tissue might have been included in the ovary and in later years produced this fibroid.

Another explanation is that this might have been a pedunculated fibroid lying in contact with the ovary; a little twist of the pedicle, a little inflammation on the surface of the tumor, an adhesion to the ovary; more twist, more adhesion, and so on until the blood supply of the pedicle is destroyed and the pedicle disintegrates and frees the tumor from the uterus, meanwhile a new blood supply to the tumor from the adhesions keeps it alive and the adhesions organize until they form such an intimate attachment as to be unrecognizable to the naked eye.

So we might go on theorizing how this tumor or its beginning became so intimate with the ovary. However, this is not so strange because there have been at least twenty-three such cases. There is a stranger condition connected with this tumor; that is:

It was infiltrated with medullary squamous-celled carcinoma.

Such a case, a migratory uterine fibroid being infiltrated with carcinoma, as I said before, so far as my knowledge extends, has never been recorded.

A microscopical examination of the uterus revealed an apparently normal uterus with the exception of the intramural fibroid, which easily shelled, the left ovary was normal and the cervix was not excised.

Most of the ovarian tumor, and a large piece of the uterine tumor were preserved; the balance was thrown away. There was not enough knowledge present to recognize that a rare specimen was being handled and it was not routine to save specimens for thorough examination.

The ovarian tumor was sectioned and carcinoma found in the tumor, but not in the ovary; the uterine tumor was sectioned and no carcinoma was found; the cervix was left and at the end of two years is atrophied and shows no sign of carcinoma. From whence did the carcinoma come? From the body of the uterus? Perhaps; I do not know. I threw the body away. There were no macroscopical signs or clinical symptoms to indicate the presence of carcinoma in this body. If there was, why was the uterine tumor free?

Many times have I regretted my destructive tendencies and desired a section from that body. It would perhaps shed light upon the origin of this carcinoma which lends such interest to this tumor.

Carcinomata cannot just grow, they must come from epithelial cells and usually we do not expect to find epithelial cells in a sub-peritoneal fibroid. Perhaps the patient may yet reveal the source of these cells.

In summing up we can say that the case presents an extraordinary, and a very extraordinary, aspect. The extraordinary is the finding of a uterine fibroid lying in the pelvis detached from the uterus and attached to the ovary. The very extraordinary circumstance is that the fibroid is infiltrated with carcinoma.

Returning to the text of this discourse, sup-

pose, for the sake of the argument, we admit the truth of the proposition that this tumor is the only one of its kind. Then it should have as much interest for us even though it blossomed in Streator as it would had it been picked in Chicago.

However, for interest to be developed in this club, it is not essential that only the extraordinary should be reported and discussed, even the ordinary cases are interesting if we desire to make them so.

From a medical standpoint, Streator is not radically different from other places. Pneumonia, typhoid fever, anterior poliomyelitis, etc., are of the same nature and have the same characteristics and reactions here as elsewhere; hernias, appendectomies, cholecystectomies and thyroidectomies are the same in Streator as in the rest of the world. We have the same anatomical and physiological bodies to observe; we even have brains ourselves the same as other men. All we lack is a little ambition, a little energy to have medical meetings of as great interest with home talent as with foreign.

If we cannot get our feet out of the clay and must cling to the material aspect, be assured that the man who does enough work so that he can write an interesting paper for the Streator Medical Club will not go unrewarded. The effort required to produce such a paper cannot but react upon the man and develop him until even the public can discern that he is a better man than the one who puts forth no such effort.

During my residence in Streator, a source of great irritation has been the general impression both among the laity and the doctors themselves that home talent is deficient and when any citizen of prominence or any citizen with a surgical or medical disorder needs medical services he must step to Chicago or have Chicago step to him.

I believe that this impression originated in Chicago and has been developed by the medical profession of Streator and when emergency arises, the idea bobs up just as it does when we desire an interesting meeting.

Furthermore, I believe that the power to change this impression lies in the members of the profession itself and that if each man could be stimulated to forget the art and think more of the science, it would not be long until Streator doctors, that is, home talent, would have as eminent standing as foreign talent.

FUNCTIONS AND PROBLEMS OF A MEDICAL SCHOOL INSPECTOR.*

DUDLEY W. DAY, M. D.,
ROCKFORD, ILL.

After many years of agitation and of teaching by object lesson, the time has undoubtedly arrived when arguments to show the need of and benefits to be derived from medical school inspection are no longer necessary. We now have school inspection as a well founded department of the educational institution. Our work of today and of the future is the further perfection of the work we are already doing and the enlarging of and reaching out for new functions. The importance of medical inspection, the fact that it is of basic importance to the pedagogic phase of the school curriculum, is just dawning upon the great body of teachers, the great body of physicians and the greater body of parents.

In the popular mind the principal functions of the medical inspector are supposed to be:

1. Control of contagion.
2. Control of school sanitation.
3. Examination for simple defects such as diseased tonsils, adenoids, etc.

My title calls for a discussion of the "problems" of a medical inspector. It is my experience that these simpler functions just enumerated really do furnish numerous "problems." When the family physician is appealed to because the school doctor or nurse has excluded Mary for nothing but a little cold or cough which she has every year at this time, he, the family physician, should remember that possibly the department of hygiene is bending every effort to nip in the bud an epidemic of measles or whooping cough. It is very easy to say that it was all foolishness to exclude Mary, but really, does it help the community?

In school work, as in no other line of medical work, I believe one learns the very high infectiousness of the early stages of practically all infections. School inspection and the epidemiological studies thereby made possible are teaching the medical profession that epidemics spread by direct contact and by direct contact almost entirely. Detect and isolate the infected individuals and an epidemic disappears. The frequent clamor of parents, too often incited by physicians, to close the schools because of the presence of an

*Read before the Tri-State District Medical Society, Freeport, Ill., Sept. 26, 1916.

epidemic, is good evidence that we still have a wide field needing education. If, together with your school closing, you absolutely isolate each child you will surely secure the desired end, at an unnecessary loss of time, education and increase of expense. Efficient inspection plus noninterference by, and moral support of, the medical profession will control quickly and cheaply practically all epidemics. I have no criticism of the present closing of schools to prevent the spread of poliomyelitis, but it is very evident that the order is based on our ignorance of the disease. We are simply repeating the history of our other contagions which are now well understood.

None knows better than the school inspector of experience that in the diagnosis of physical defects, honest differences of opinion are entirely proper and inevitable. In much of his work the school physician is under a decided handicap. He is limited in facilities, equipment, and extent of examination procedure and yet is supposed to make fewer mistakes than were he working in his own private office. The majority of children who come to examination have proven themselves a problem in some way or other. Either the teacher or nurse has detected an apparent abnormality, or the child is backward, or a problem in discipline. Let me impress upon you that in many of these cases the school diagnosis is tentative and is made to get the child to you, the family physician, and thus secure your thorough examination, advice and co-operation. Let me suggest that often the family physician may increase the value of his advice by inquiring into a child's school activities. I believe it true that a given abnormality in a normal child may call for different advice than the same abnormality in a subnormal child.

One's activities in school service soon carry him into different fields than those just mentioned. Preventive medicine, the different types of mental abnormalities, social service to the community, the whole co-ordination of health and mind in the individual and in the mass are less well known activities which are really the most important functions of medical inspection.

Here let me emphasize the very great value to any community of the school nurse. The properly founded nurse has a value unique unto herself and her place cannot be filled by any physician. She can do more social service and

bring parents into closer touch with the school than can any other worker.

In our modern high-speed existence we are beginning to realize the needless and criminal waste of preventable disease. Note that I say "beginning," for medical men know how far we fall short of completely profiting by our knowledge. One of the most encouraging signs of progress is the fact that communities are learning that the time to cure tuberculosis is before it has developed. How much preferable to develop the underfed subnormal child into a healthy one in the open air school, than to support the same individual a few years later in the municipal tuberculosis sanitarium. Let him develop tuberculosis and he spreads the disease, takes longer to cure if such be at all possible and, in plain language, he costs more to the taxpayer.

In Rockford today we are developing an unusual co-operation between the trustees of our Municipal Sanitarium and the Board of Education. The open-air school is built and maintained by the sanatorium and the education is furnished by the school system. We believe we thereby furnish ideal conditions for an open-air school and prevent needless duplication of equipment and expense to the taxpayer. How better can a sanatorium serve its important function of prevention?

Another needless waste which we are striving by medical inspection to eliminate is that of the child who enters the competition of school and later that of life the victim of some physical defect which is subject to correction. In no place can the adenoid, the diseased tonsil, or the defective eye be as generally detected and properly dealt with as in the school examination. The struggle for existence today is too keen and the plane of physical and mental efficiency too high to allow needlessly handicapped individuals to compete.

Probably no child is today the subject of more study, conjecture and experimentation than is what may largely be classed the backward child. Inquiry by any of you in your own city will elicit the knowledge that there is a very large percentage of children who at some time during their school period have to repeat one or more grades one or more times. In Rockford last year 37 per cent. of our children were backward; 59 per cent. of these were 1 year below; 26 per cent. two years, 9 per cent. three years, and so on down.

There are many types of "backward child." I will speak here of only three types, namely: First, the child backward because of some removable physical defect; second, the dull child, not really mentally defective, but just dull at least for a few grades; and third, the true mental defective.

All of these types are proper material for the medical department. The correct treatment for physical defects, the first type, is evident. Often the proper treatment is much more evident than is the means of securing it. I am still enough of an optimist to believe that some day in the future there will be universal laws which will put the welfare of the public before personal privilege and give us a means of compelling parents to give their children the benefit of proper remedial agents. It is a heartbreaking experience to watch an adenoid case year after year, see him failing in his studies, being stunted physically and yet be unable to secure the simple needed relief. Many of these problems are our problems, in that education and publicity must come from us, as a profession. A wonderful amount of knowledge concerning these matters has already been brought home to parents. We should be proud of our work, but must not think it is complete.

The handling of the dull child, the second type, is comparatively simple when once he is correctly classified. This child faces two dangers. One is to be considered a normal child and to be expected to do the work of a normal child; the other to be considered a true mental defective. In this field the school physician finds difficult problems. It is often only by long continued co-operation between the pedagogic and medical departments that proper diagnosis can be made. In making diagnosis all phases of the child's life have to be taken into consideration; his heritage, his personal history, his physical and mental health, his habits, his home influences and companions. These children should be under special instruction in special or ungraded rooms. Every precaution must be taken not to stigmatize them as mental defectives. We are all familiar with the dull child who suddenly develops into the keen, efficient adult when he finds his special niche. Perhaps the future in psychanalysis holds the solution for us of these cases.

When we come to the true mental defective I

believe we are discussing individuals who in reality have no place in the school system.

There are two permissible havens for the mental defective: one the public institution, the other the private home with a personal attendant for life. The only function of the school is to act as a temporary guardian, at the same time making a complete diagnosis by observation, Binet and other mental tests and as soon as possible securing institutional care for the defective. True it is, that all except the lowest mentalities can be taught something, but it is only parrot knowledge, of no value in making the individual safe and efficient in free competitive life.

The ungraded rooms to my mind should be a clearing house, a filter. Some of its product will go to the state institution, some to rooms for special instruction, and some even back to the regular school room. The very greatest caution must be used in this work.

Gentlemen, school inspection is but a part of the present great movement of interest in the growing child. It has grown in the past because of the support of the medical profession. I ask for the continued support of the entire profession in the continually widening field of work.

The great American child is a wonderful creation. He is worthy of the serious study of all of us, but most of all he is worthy of the complete co-operation between teacher, school hygienist, physician and parent.

THE USE OF MASSAGE AND EXERCISES IN THE TREATMENT OF FLAT-FOOT.*

HUGO AD. OLDENBORG,
CHICAGO.

The type of deformity of the foot, which we ordinarily range under the name of flat-foot (*pes planus*), is always associated with an outward rotation in the ankle joint (*pes valgus*), and the orthopedic men seem to agree that the best name, consequently, should be *pes valgo-planus*.

In order to lessen the shock to the body when, in the step, its weight is moved from one foot to the other, the foot is so constructed that the landing is made, not on a rigid surface, but on an elastic, springy one. There are three main points of support to carry up that weight; one

*Read before North Shore Branch, Chicago Medical Society, Feb. 6, 1917.

is the tuberosity of the os calcis, another is on the head of the first metatarsal bone and the third is on the head of the fifth metatarsal (although the heads of other metatarsals also share in the support).

If we connect these three points with straight lines we have the idea of the three arches in the foot (von Meyer's tripod), the outer arch, the inner arch and the transverse arch, which arches are maintained by means of a strong ligamentary apparatus as well as by muscles in the foot and the calf. In speaking of the ligaments, we may mention the following as being most active in maintaining the arches. The outer arch has as its main support the strong inferior calcaneo-cuboid ligament. The inner arch is sustained principally by the inferior calcaneo-scaphoid ligament which comes from the sustentaculum tali of the os calcis, and is attached to the under surface of the scaphoid bone. The space between these two bones is separated by the head of the astragalus, which rests upon this ligament. The transverse arch is kept up by a plantar ligament.

Concerning the muscles, we would like to quote John Dane:¹

Of the muscles, four are, from the peculiar arrangement of their tendons, of maximum importance in the maintenance of the arch of the foot. The tendon of the peroneus brevis muscle, having passed under the external malleolus, continues forward to be inserted into the base of the fifth metatarsal bone, thus spanning almost the entire external arch; the peroneus longus, keeping in company with the brevis in this course under the malleolus, passing over the external surface of the os calcis, winds around the outer border of the foot to enter the groove on the lower surface of the cuboid. From this it crosses the sole obliquely to its principal insertion on the posterior part of the first metatarsal bone. The outer and middle arches are both strengthened and bound together by this long tendon.

On the inner side of the foot there is first the tendon of the tibialis posticus, which, after passing behind the internal malleolus, runs forward to be inserted into the scaphoid bone, in its course resting directly against the inferior calcaneo-scaphoid ligament, which in its turn bears against the head of the astragalus.

The tendon of the long flexor of the big toe likewise turns around the internal malleolus. From this it passes in the groove under the sustentaculum tali of the os calcis, and runs forward in the sole of the foot to its insertion in the terminal phalanges of the great toe.

To these we would like to add, first the flexor digitorum longus, which also passes behind the inner malleolus and beneath the other muscles of the foot, dividing its tendon in four parts, giving flexors to the four outer toes. In strongly flexing these toes this muscle together with the flexor hallucis longus will help to bend up the longitudinal arches.

We should neither forget the tibialis anticus which, going in front of the inner malleolus and on the inside of the foot, becomes attached to the under surface of the base of the first metatarsal bone, just in front of the insertion of the tibialis posticus on the scaphoid. This muscle together with the tibialis posticus, is the principal supinator of the foot, and just, therefore, so important in the prevention of valgus deformity.

A great number of the slowly developing skeletal deformities that we meet with are caused by a disproportion between the load and the power to carry this load, as for instance, scoliosis, knock-knee and flat-foot. We are apt to look upon these conditions as being caused by skeletal defects, not giving sufficient consideration to the importance of the support of the live power of the muscles. The disproportion between the load and the sustaining power may arise either from the circumstance that the weight is too great, or result from a condition in which the sustaining power to carry the normal weight has become reduced. The former is exemplified by the type of case that one not infrequently meets, namely, in a person of middle age, who begins to put on flesh and soon also experiences trouble with his feet. The latter type of case one will find in a person, who, after having overcome a serious constitutional illness, for instance, typhoid fever, has trouble with his feet when the normal weight of the body returns faster than the strength of the supporting muscles, and he, because of this condition, begins to experience pain in his feet. The load may again become too great for the sustaining power, even though the weight be not absolutely too large; for instance, if this weight is kept up for too long a time without rest or in an unfavorable position. Here we come into the question of flat-foot as a trade disease, and in this connection we also want to consider the importance of the nutritive condition of the muscles. The circulation in the legs is greatly aided by the alternating contraction and relaxation of its muscles. Therefore, walking is of great help to

1. Boston Med. & Surg. Jour., Vol. 127, page 401, 1892.

the circulation of the lower limbs, while people, who for great lengths of time have to stand still on their feet are apt to suffer from disturbances of that circulation shown by the frequent presence of varicose veins. We also find that the same class of people are apt to suffer from flat-foot, for instance, chefs, waiters, barbers, and nurses, while letter-carriers, as a rule, do not complain of trouble with their feet.

By placing the foot in outward rotation, a position taken for the purpose of giving broader basis for support, there is an extra strain put on the ligaments going down from the inner malleolus, thus weakening the ankle and favoring the development of valgus position in that joint. This is the explanation of flat-foot troubles of apprentices in blacksmith shops, who are apt to take this unfavorable position in swinging the heavy sledge hammer. The fact that a great number of individuals being employed in these various trades do not sustain these troubles with their feet seems to bear out the fact, that we shall look for the principal etiological factor in their lessened ability to sustain the strain put upon the foot. Such lessened ability, we frequently meet with in the developmental period of the youth, for instance, those, who for one reason or another are anemic, are also apt to have trouble with their feet, a condition generally spoken of as "weak ankles." It may also depend on special affections of the bone structure, for instance, rachitis; as a deformity of this nature advances, the strain upon the sustaining powers also increases, so one would have reason to expect that the speed towards the full deformity should be augmented.

Nature has, however, provided certain resources which, if they do not tend to restore normal shape, help to hold back the progression. So, for instance, will the bone itself, after an affection like rachitis has ceased, develop new substances, which are arranged in such a manner as to sustain the change in the application of the load, produced by its deformity. It has furthermore been demonstrated that the muscles that help to maintain the arch will at least in the earlier stages of the disease show hypertropical development, evidently for the purpose of holding back the progression. When the disease has come to its full development the supporting power of the muscles has been conquered. Then one finds those on the flexor side in a state of

atrophy, while the extensors, and especially the peronei are in a state of contraction. The ligaments have also done their part to hold back the progression, because one finds the plantar ligaments to be thicker, especially the calcaneo-scaphoid, while the dorsal ones are in a state of fatty degeneration. The whole foot then becomes rotated outward and in a state of dorsal flexion. The astragalus projects inward and downward, so that its head rests heavily upon the calcaneo-scaphoid ligament, while the tip of the external malleolus of the fibula is flattened out by its pressure against the os calcis, which bone is rolled over inwards.

In planning the treatment for the type of deformity that we call flat-foot, the question of etiology naturally becomes prominent. Hoffa² classifies the various types in:

- (a) Congenital;
- (b) Traumatic;
- (c) Paralytic;
- (d) Rachitic;
- (e) Static.

The congenital flat-foot is treated by means of rotating manipulations and orthopedic apparatus.

The traumatic flat-foot is most commonly seen as a result after a Pott's fracture, when the patient begins to walk after having been kept off his feet for a more or less protracted time. While the fracture was held in immobilization there developed an atrophy of the supporting muscles, causing the patient's inability to maintain the arch when he began to walk. We believe it to be an important feature in the treatment of these fractures, to let the patient start the exercises of rotating his foot inward as soon as possible, and also to practice flexing his toes; this training to begin at least a week or ten days before he is allowed to put the full weight of his body on his foot. The muscles of his foot and calf then get an opportunity to recover their normal tonus and thereby their ability to carry up the arches when the full weight is put on them again. We believe that most teachers of surgery, nowadays, advise their students to dress these fractures with the foot in the position of supination with the view of helping to save the patient from having a flat-foot when he recovers from his injury.

In the paralytic flat-foot, which one meets with not so infrequently, particularly in connection with infantile paralysis, the training of the

2. Lehrbuch der Orthopädische Chirurgie, 1902.

muscles, which help to support the arches, is of course a very important feature in the treatment; and the degree of paralyzation will naturally decide whether these patients will need orthopedic apparatus besides the training and the manipulation.

In rachitis anyone can see that it would be foolish to treat the foot alone without giving the constitutional affection any attention. When the constitutional disease is overcome, the treatment will have to be decided according to the deformity then existing.

The majority of the cases of flat-foot that one encounters will, of course, be classed under the so-called static form. If the condition be acute, such patients should be taken off their feet until the soreness has disappeared. Here, one often meets with a serious economic question, however. The patient's financial condition may demand that he does not stay away from work, and the physician may also have difficulty to impress upon the patient that his point in trying to keep him off his feet is an important one. If the circumstances do not permit the patient to take a horizontal position, and free himself from the irritation of tight-fitting shoes, he should at least take the weight off his feet by using crutches until the soreness has gone away. During this time the tender areas about the plantar surface of the foot should be manipulated daily by deep massage. Massage of the muscles of the leg for the purpose of relaxing those that are spastically contracted, accomplished by means of light strokings, and stimulating those that are weak, by more vigorous manipulations and tapotement. As we generally find the foot stiff and unelastic, we should use manipulations which tend to loosen the joints as well as such passive movements as aim to redress it into normal shape again. Gradually, as the tenderness disappears, we begin with the exercises. These consist of inward rotation of the foot, first without and afterward with resistance, and strong flexion of the toes; to begin with, alone, later on in combination with the inward rotation.

The patient is by and by allowed to put his foot on the ground and as the disappearance of the soreness permits, made to walk for short periods of time. When his strength increases he is told to walk on the outer edges of his feet, raise up on his toes and walk on his toes while

he tries to create a varus position in his ankle. He is also made to strongly contract the flexors of his toes in the step. The massage should be made in such a manner as to give the patient a feeling of comfort in his foot and the exercises should not be kept up so long each time as to lead to fatigue. When the patient has learned how to practice them himself he should be told to repeat them frequently, but not too long at a time.

In the advanced stages of flat-foot, we do not believe one can give much hope for cure. Orthopedic supporting apparatus may give some relief. Here, attention may be called to the fact that the orthopedic apparatus never does cure the condition, only supports the arch. The cure, when such can be brought about, is accomplished by means of the exercises. This relation between the two forms of treatment does not seem to be sufficiently appreciated. They should be used together and not to substitute for each other.

Finally one often meets with patients who suffer from pains in the feet and legs which are of purely muscular nature and have their origin in some focus of infection, perhaps in the nose, throat or teeth. When the focus is cleaned out the trouble with the feet generally also disappears.

122 South Michigan Ave.

AMAUROTIC FAMILY IDIOCY. (TAY'S-SACHS' DISEASE.)*

EDWARD F. LEONARD, M. D.,

CHICAGO.

Assistant Professor in Neurology, School of Medicine, University of Illinois; formerly Assistant Physician, Jacksonville State Hospital.

CASE HISTORIES.

Case I.—Male, 17 months old, Hebrew, second child. Patient first seen June 27, 1916. The first child of these parents is a boy 6½ years old and appears healthy, physically and mentally. The father is 32 years of age, the mother 27 years of age, not related and first marriage. Father born in Austria, mother in Russia. Family history negative. No nervous or mental trouble traceable. No drugs or alcohol used on either side.

Pregnancy: Mother well during pregnancy. Child born at full term, forceps, weighed 8½ pounds, no fever. Nursed child up to four months; then milk gave out and changed to bottle.

Personal History: There was no distinct nor definite disease up to ten months, when the patient had a

*Read before the West Side Branch of the Chicago Medical Society, January, 1917.

severe bronchitis that lasted ten days, coughing a great deal. The child became thin and lost in weight. Legs and arms became weak and he had difficulty in drawing up the legs; he could neither hold head up nor sit up. The mother believes that at six months the child acted like other babies of that age; would laugh if tickled, but did not do so during my examination. Mother thought child could see before illness, as he would try to grasp at things and would play with a rattle. At time of examination would not grasp at rattle of own accord, but would take hold of one if put into his hands. After illness he became yellow, and moaned and fretted a great deal, and the slightest sound caused him to jerk.

Before illness the bowels and kidneys appeared normal; after illness child suffered with constipation. No trouble at teething, and no convulsions. Child never made any attempt to crawl.

Examination showed a poorly nourished child; circumference of head 19 inches; anterior fontanelle open. The head was thrown back and supported by the mother's hand. The pupils reacted to light, and patient would turn head toward the direction of a sound.

Knee, biceps, triceps reflexes increased. Babinski and Oppenheim present on both sides. Arms and legs were spastic. Child died October 31, 1916, of bronchopneumonia.

Case 2. Female, aged 15 months, first and only child, Hebrew; father born in Germany, mother born in Russia. Child at birth appeared normal, was examined by writer July 19, 1916, father reporting at that time that patient had not been well since it was seven months old. At time of birth forceps were used, mother being in labor for 18 hours. Child breast-fed for eleven months; first tooth cut at the age of nine or ten months. The father stated that the child seemed normal when two months old; when it was seven months old, a picture was taken, at which time it was noticed that something was wrong, for at the photographer's it would not pay any attention to the toys used to attract its attention. During the fifth or sixth month, however, the patient observed light, but the parents at that time noticed that the child could not hold her head up; up to that time she could not sit up, in fact never did. The child took liquid foods, but no solids; did not suffer from any of the diseases of childhood. The limbs seemed weak and the child was restless.

The father and mother are both living. The father had a struggle to secure an education, and since marriage, more or less of a struggle to earn a livelihood. The grandparents on both sides are nervous.

Examination: The child seemed well nourished, but pale. Head 19½ inches in circumference and anterior fontanelle open. Eyes would move from side to side when child was tickled. At times the child seemed able to follow a pocket-light. There was some strabismus. The child did not follow examiner's finger when placed in front of eyes. When finger was raised the eyes looked upward.

The head, trunk and extremity muscles were weak.

At times limbs would straighten out and child become rigid. The head fell back, and child could not lift it, and it felt like a weight on one's arm. There was moisture of the hair of the scalp. The deep reflexes were increased. The least noise caused the child to suddenly jerk. Very often during the examination there was a moaning cry from the patient.

During the early part of October, 1916, the child developed a gastro-enteritis, and two weeks later a number of epileptoid convulsions came on. Last saw the patient on October 31, after a series of convulsions.

From the history, general appearance and examination of the patients, a provisional diagnosis of amaurotic family idiocy with hydrocephalus was made, and patients referred to Dr. G. F. Suker, Chicago, for eye ground examination. He reported that the eye findings were typical of Tay's-Sachs' disease.

DESCRIPTION OF THE DISEASE.

Definition. Reviewing the literature one finds that this is a rare disease, occurring in family groups, characterized by the gradual onset of blindness and a dark red spot in place of macula lutea, with mental and physical impairment, and ending invariably in death.

Historical. On account of the eye trouble Warren Tay of London, in 1881, was the first to describe a peculiar disease of the cerebro-spinal system occurring exclusively in childhood. He called attention to the affection in a child of twelve months. In the same family three similar cases occurred.

Sachs, after extensive study of the affection, described his first case in 1887, not knowing that Tay and Kingdon had previously published theirs. Sachs collected 27 cases in the literature, his own being included in the number. Kaplan published two cases, and has since seen six others. Cases and studies of the disease have been reported by Claiborne, Patrick, Kuh, Jacobi, Hirsch, Peterson, Cotton, Hirschberg, Frey, Beard, Collier, Carter, Falkenheim, Holmes, Poynton, Apert, Haverach and others. Holden, Mohr, Treacher, Collins, Schumway, and Buchanan have examined the eyes postmortem. F. W. Mott¹ gives the microscopic and chemical changes in central nervous system, of two cases of this disease.

Etiology. Different views are held concerning the probability of a congenital or an acquired origin of the disease. Four theories have been advanced to account for it:

1. Cortical agenesis (Sachs).

1. Mott, F. W.: Arch. of Neurology, iii, 218.

2. Primary cortical degeneration (Russell and Kingdon).

3. A toxic degeneration of the motor neurones (Hirsch). He is inclined to regard amaurotic idiocy as a form of infection originating in the intestinal canal.

4. Degeneration resulting from an inherent bio-chemical property of the protoplasm of the nerve cells (Holmes).

Coriat believes that on account of the normal characteristics up to the ages of 4 and 10 months, that the disease is not really an idiocy, but is a form of dementia, as the macroscopic and microscopic changes are not those of idiocy, and he suggests the name "Amaurotic family dementia."

Mettler believes it is a fundamental development defect, one in which the newly-coined word of Gowers', "abiotrophy" could be applied.

Mott says: "The fact that it affects children of Jewish parents, suggests that it owes its origin to some racial inborn tendency to neuronic decay, probably associated with some exciting or predisposing factor connected with an altered condition in the chemical composition of the blood, whereby the normal bio-chemical interactions of the nucleus on the cytoplasm and environmental lymph of the neuron is interfered with." Most authors, however, are disposed to believe it is due to some congenital defect.

Familial statistics show that the disease is usually present in several members of the family, and seems to be distinctly hereditary. Sachs reports 17 cases occurring in 6 families. Ireland, in a report of 27 recorded cases, states that eighteen occurred in twelve families. As many as four cases have been observed in a single family, as shown by Tay's cases. Peterson reported three members of one family afflicted with it. Apert in 1908 collected 82 cases, with 27 additional cases occurring in relatives of the 82. Several healthy children have been born to parents who have had one or two children afflicted with this disease.

Age. It commences during the first year of life. At any time between the fourth and tenth month, a normal infant, born at term, will more or less suddenly cease to grow, physically and mentally.

Race. All the recorded cases have occurred in the offspring of Jewish parents, except one case

reported by Turner.² Speilmeyer, Higier, Vogt, Dereum, and others, have described as a juvenile form of the same disease, a condition with many similar symptoms. It sets in between the ages of 8 and 12, and occurs in other than Hebrew families. It has a more chronic course, and there are no changes in the macular region.

Syphilis. Absence of syphilis has been distinctly noted in most of the histories, and it does not appear to have any relation to congenital syphilis; although Dr. Geo. E. Price,³ of Philadelphia reports a positive Wassermann reaction on blood-serum in a case of a Hebrew boy aged sixteen months.

Maternal trauma. Injury to the mother during pregnancy has been reported in several instances.

Pathology. Uniform degenerative changes in ganglion cells of the gray matter throughout the whole nervous system; the ganglion cells were increased in size, containing a globular nucleus; the cell membrane and cyto reticulum were intact, but the Nissl bodies had entirely disappeared. There was a destruction and breaking off of the dendrites and axis-cylinders. The cerebral convolutions were of a primitive type; microgyri, an absence of the tangential fibres, and a decrease of fibres of the white matter.

The medulla, corpora quadrigemina, geniculate bodies, 3d or 4th cranial nuclei, and the cells and fibres of the optic tract showed degenerative changes. There is also a degeneration of the ganglion cells of the retina. Changes have been found in the pyramidal tract. The blood vessels were found normal. Mott found in his two cases that the posterior spinal ganglion cells, and the sympathetic ganglion cells showed disappearance of Nissl substance. He says: "It is therefore probable that every nerve cell in the body is thus affected more or less." He believes that the essential feature is a failure in the elaboration of the nucleo-proteids of the neurons as evidenced histologically by the disappearance of Nissl granules.

F. Peterson found change in the suprarenal glands. McKee found changes in the thymus gland; Gordon found enlargement of the thyroid.

Ocular changes. The appearance of the optic disc is pathognomonic in the disease. Fay, Wadsworth, Carter, Beard, Westcott and others have studied and described it. The change in and

2. Turner: Brit. Jour. Child. Dis., 1912.

3. Price, Geo. E.: J. A. M. A., May 15, 1914.

around the macula lutea is the important diagnostic sign. Beard describes it as follows: "Surrounding the fovea centralis, concentric with it, and two or three times its size, is a liver-colored disc. The disc is the center of a zone of grayish-white which gradually fades away into the normal red-orange of the eye ground. As clear cut as a coin is this livid disc. It is not irregular in outline as is the case in acute inflammatory conditions, where the surrounding retina is infiltrated, nor is it cherry-red or carmine, as in those cases, but it is distinctly brownish. It is larger than the fovea; that is to say, instead of marking the area which is occupied by the cones alone, it marks that which is devoid of the ganglion cells. The whitish zone that surrounds the center is also highly characteristic. It is nebulous rather than cloudy. It is almost white at the circumference of the liver-colored disc, thence gradually thins away to nothing, but is translucent and exhibits some color throughout. It does not obscure the retinal vessels which enter it. It only serves to make them more distinct by contrast, so that one is able to trace the tiniest of them right up to the central spot."

Symptoms. A child born normal and healthy seems to all appearance to be getting along nicely until about the fourth or eighth month, when it is noticed there is some weakness of the muscles of the neck, which leads to an inability to hold the head erect. (It appears top-heavy.) This weakness gradually extends to the trunk and limbs. The little patient can no longer hold up its head, sit erect or grasp anything. The paralysis at first is flaccid, later changes to one of spasticity with atrophy. The reflexes are either normal, a trifle subnormal, or exaggerated, according to the stage of the disease. The functions of the body are below normal, and marked pallor supervenes. Early, and associated with this general weakness, there is a gradual recession of its previous mentality, the first signs being simply a dullness, a loss of interest in objects or playthings which before attracted its attention; it does not seem to notice mother or nurse, and cares less and less for play. Associated early with the physical and mental weakness there is a disturbance of vision, and this may partly account for the child's early lack of interest. Rapidly the child becomes blind. Periodical convulsions are present in some cases.

Strabismus, nystagmus and irregularities of the pupils and dysphagia further show involvement of the muscular system. In some cases the head is enlarged and the fontanelles still open. The pulse is often rapid. Bronchial attacks and gastro-intestinal disturbances are frequently present. In some cases there is increased sensitiveness to touch and sound and the slightest noise in the room startles the child. Frequently, jerky movements of the limbs are noticed.

Prognosis. The malady runs a course of about two years, and invariably terminates fatally, marasmus, pneumonia or convulsions causing death. Of the twenty-seven cases of Sachs, only one lived to the age of six years. Sachs sums up the chief symptoms as follows:

1. Mental impairment observed during the first months of life and leading to absolute idiocy.
2. Paresis or paralysis of the greater part of the body, and this paralysis may be either flaccid or spastic.
3. Reflexes may be normal, deficient or increased.
4. A diminution of vision terminating in absolute blindness.
5. Marasmus and a fatal termination, as a rule, before the age of two years.
6. Occurrence of the affection in several members of the same family.

Treatment. The treatment is symptomatic. Some authors, believing the disease is due to a toxemia, or that the maternal milk is deficient in those agents which are of primary importance in the development, physical and mental, of the child, recommend removing the child from the breast, and the child given fresh-drawn cow's or goat's milk. Most of the cases have been breast-fed. It has also been suggested to try small doses of adrenal gland, thymus, thyroid, or pituitrin.

It has also been suggested that in any future cases a careful chemical examination be made of the mother's milk.

BIBLIOGRAPHY

- Tay, W.: Oph. Society, 1881, page 55, Vol. I.
 Sachs: Jour. Mental and Nervous Dis., 1887, 1892, 1903; N. Y. Med. Jour., 1896; Deutsch. Med. Woch., 1898, 1903.
 Posey and Spiller: The Eye and Nervous Diseases, page 532.
 Carter: A. of Oph., XXII, 1894.
 Edinjer Parsons: Pathology of the Eye, Vol. IV, 1368.
 Hirsch: Jour. of Mental and Nervous Dis., 1898, XXV.
 Holden: Trans. Am. Oph. Soc., 1898, page 405.
 Davis and Oatman: Contributions to Med. and Surg. 25th Anniversary N. Y. Post-Grad. Med. School and Hosp., 1908.
 Also numerous text-books and medical papers.

THE TREATMENT OF TABETIC ATAXIA BY RE-EDUCATIONAL EXERCISES*

LEWIS J. POLLOCK, M. D.,

Instructor in Nervous and Mental Diseases, Northwestern
University Medical School.
CHICAGO

Ataxia is so prominent in the symptomatology of *tabes dorsalis* that it is employed in the formation of the clinical terminology of this disease. Unlike many of the symptoms it is not amenable to medical treatment, nor it is influenced by any of the measures recently adopted for their curative value. Pain and gastric crises may disappear, the serological picture may become normal and the disease may apparently become arrested as the result of proper spirochaeticidal therapy, but the severity of the most disabling symptom, ataxia, remains unabated. That so important a feature of this disease should receive so little attention from the medical profession is little short of remarkable. Although reeducation and compensatory exercises have been described for a number of years and in spite of the benefit derived as the result of the employment of these methods, the literature is comparatively barren on these subjects and the administration of the treatment half-hearted and desultory. Inasmuch as ataxia is due to a pathological deviation of physiological movements it will be of some value to review very briefly the subjects of co-ordination and ataxia. The term "Co-ordination" denotes the united action of a group of muscles in order to carry out an intended movement. In order that a movement may be co-ordinated it is necessary that a certain number of muscles should enter into action in a definite grouping and succession and with a regulated distribution of strength. Every movement which has a determined object sets a number of muscles into action. Not only are the chief agonists or the muscles whose contraction brings about the intended movement, but also the synergist and antagonists brought into play. The newly born babe does not make any co-ordinate movements. In it the chief movements consist of those producing crying, sucking and swallowing. Actual co-ordinate movements must be acquired. Little children when attempting to walk or catch a ball or eat with a spoon make movements which are not co-ordinate but which are not strictly speaking ataxic. This same disability is observed in adults when they

attempt any unaccustomed movement, as playing the piano, skating, etc. At first the movements are not at all adapted to the performance of the desired purpose and become skilled only after long continued and persistent repetition.

When the regulated correlation of movements is disturbed ataxia ensues and is demonstrated by the fact that the movements are not carried out so that they reach their object by the shortest way, or with the requisite amount of force, or with the employment of the smallest number of muscles possible. This ataxia may be brought about pathologically in a number of ways. It may be present as the result of cerebellar and adnexal lesions where it is due to the injury to the main center of co-ordination. Careful analysis of the laws that govern co-ordination shows that uninterrupted reception of sensations from our surroundings and tendon, muscle and other deep sensations acquainting us with the position of our extremities is an integral and indispensable part of the mechanism of co-ordination. A defect in these functions therefore results in an ataxia which is called sensory and which is the type found in *tabes dorsalis*. The patient suffering with *tabes dorsalis* is ataxic because he can no longer feel the position of his extremities, in fact he loses them, can no longer tell how far a muscle has contracted and how forcefully it has acted, or how rapidly it has moved. He attempts to compensate for this loss by employing his eyes to supply for him the information his sensory functions deny him. It need not be recalled to you that one of the classical signs of *tabes*, Romberg's sign, is based upon this very fact. As in the ataxia of *tabes* so in the clumsy movements of normal individuals performing unaccustomed acts, removal of the assistance of vision decreases the disability. The disability in *tabes* is not dependent upon the ataxia alone. There is for instance the muscular hypotonia and the flaccidity and relaxation of the capsules and ligaments of joints permitting hyperextension and causing flail joints.

The degree of ataxia and the amount of disability varies in the same patient according to certain circumstances, whether he walks alone or with someone to support him, whether the room is well illuminated, whether the floor is carpeted or polished, whether there is near at hand a piece of furniture that he might grasp if he fall, whether he is walking in a room or upon the

*Read before the North Shore Branch, Chicago Medical Society, Jan. 2, 1917.

street. Upon such entirely external conditions depends the type of gait, either the care-free cock stride or the short fearsome walk. These very facts prove that the tabetic has not lost the faculty of adapting his movements, however imperfectly, to the occasion. It is an interesting and important observation that tabetics have forgotten how to perform certain movements, as in arising from a chair they forget to bring their legs back first, or in walking they forget to shift their balance from one to the other foot.

One of the characteristic faculties of the nervous system is its teachability. To be learned, an episode or movement, etc., must be clearly apprehended, closely attended to and frequently repeated.

Upon this premise are based the various methods of the re-educational treatment of tabetic ataxia. Such methods have been employed by Leyden, Goldscheider, Raymond, etc. The greatest impetus in this direction, however, was afforded by the development of a very exhaustive method by Frenkel (Heiden). Later in this country a slight deviation was described by Malone. Of course, to be teachable some sensory fibres must be intact, and many fibres are usually intact in tabes. Upon what does the success of these methods rest?

It is related by Frenkel that a now famous professor, in preparing his maiden lecture, selected a certain number of tabetics for the purpose of demonstration and inadvertently instructed them as to what movement each one was to perform; they in their eagerness to please practiced these several movements so assiduously that to the professor's chagrin they performed them with the precision of perfectly normal individuals. Thus it is seen that Frenkel's treatment is based upon the education of the nervous system. But another factor must be considered. It is a notorious fact that tabetic patients are very suggestible; when they present themselves they usually are in the troughs of despondency; they have been told that their condition is incurable and they have become resigned to their fate of an effortless existence of deterioration. It is not at all unusual to find a patient who has but little sensory loss and an enormous disability which is the result of discouragement, fear and lack of confidence. That this is the case is demonstrated by the fact that tabetic patients improve clinically after any new treatment, and that a very much more marked improvement occurs early in the institution of the

Frenkel treatment than later. This in no sense minimizes the usefulness of a method. If we can instill hope and stimulate energy and spirit in men who have for years been confined to wheel chair or who have not walked unattended and can keep them so stimulated, then the method answers therapeutic principles very well. Fortunately this method offers even greater results. Attention of the American physicians was first called to Frenkel's treatment in 1897 by Dr. Boerne Bettman, then Professor of Ophthalmology in the College of Physicians and Surgeons, Chicago. Founded on the basis of normal movements and locomotion, Frenkel has devised a system of exercises. These exercises are notable because of the emphasis laid upon the frequent repetition of these movements and the stress put upon the necessity for precision and careful attention. They are in no sense gymnastic and such exercises are to be discouraged. If the patient performs the movements slovenly they are of no service. It is far more important to perform one movement well than a dozen carelessly. Or, it is better to do nothing and do that well. The exercises are indicated in all cases of tabes even in the pre-ataxic state. Certain conditions must be considered in prescribing the treatment. Blindness coupled with severe ataxia offers poor prospects of recovery. Hypotonia of severe grade must be attended to by orthopedic measures; it is far better to be a tabetic walking with crutches than a trained tabetic with a fractured leg. In heart disease the patients must be closely watched, as the sense of fatigue is lost. Spinal irritation is a contraindication, but gastric crisis and lancinating pains are not. The exercise should be followed twice a day, but no more. The entire exercise time should not exceed thirty minutes and no more than three minutes should be devoted to each exercise.

All tabetics suffer a marked loss of the sense of fatigue and because of this the exercises must be closely observed and the pulse of the patient frequently taken and if any marked rise occurs the seance must be interrupted. Between each exercise period a rest must ensue. Constant attention must be exercised, as many accidents may occur, as the turning of an ankle, collapse of the hypotonic knees. If the patient is very ataxic, then he must be supported by attendants with the aid of a belt. The following groups may be distinguished:

1. The patient is able to walk without support.

2. He has to lean upon the arm of a companion with or without a stick.

3. Walking is impossible, but the patient can stand.

4. Walking and standing is impossible.

The exercises are divided into those for the upper and the lower extremities. There are groups for the reclining posture and for walking; those for the reclining position should be performed in the morning, and the walking exercises in the afternoon. For some of the exercises special apparatus is required, and for others diagrams upon the floor. As a matter of fact one need have no apparatus at all. The best place to exercise in the recumbent position is the floor, over which heavy dull oilcloth or canvas has been placed.

It is needless to detail the various exercises which may be found in Frenkel's book. Those to be followed in the recumbent position consist of various combinations of the ordinary movements of the lower extremities, flexion, extension, abduction, adduction, internal and external rotation.

I have found it very serviceable to tie a bandage to the ankles of very ataxic patients and have them hold the ends in their hands as reins, guiding the ataxic extremity until it is able to perform the movement alone. Any exercise which employs the muscles subserving the above mentioned movements are proper and sufficient and one need not at all be bound to any system, provided that the fundamental tenets of Frenkel be adhered to.

First, it is necessary to study the patient and select the muscles requiring reeducation and then outline a set of exercises suitable for them. These exercises must be followed tenaciously, persistently, accurately, and most of all, slowly. Tabetics are always in a hurry just as is a normal man crossing a stream over a narrow plank. Each exercise must be well learned before any new set is presented; the patient must direct particular attention to the attempt of learning what each movement feels like, so that later the movements may be performed without the assistance of vision. The recumbent exercises bear a similar relation to the walking ones that Delaney's land exercises bear to swimming. Preliminary to the actual walking exercises, it will be found serviceable to first teach the patient how to get up on his toes and how to shift his balance from one foot to the other foot. This is easily done by having the patient stand in a doorway sup-

porting himself by the door jambs and first learn how to stand without having his center of gravity too far back, which is a common fault with tabetics, then to stand upon the toes of one, then the other foot, then to stand back and after rising upon the toes of one foot to advance the other and fall forward upon it. The use of two heavy rubber tipped canes should be insisted upon in the first walking lessons whether necessary or not, because then one can more easily obtain certain movements which I have found more or less requisite to the reeducation of walking. Almost invariably the ataxic patient uses the cane as a symbol or fetich, and that only. I mean that it is unusual to see a patient lean forward upon the canes for support as does a normal person. The ordinary thing is to find the cane going to the front and the patient to the rear. It is a hard thing to teach the patient that by leaning forward the canes will support him and falling become impossible.

It is a good thing to teach them a sort of a modified military stride in which the essential steps are the following: Up on toes, shift balance to right, fall forward on left; up on toes, shift balance to left, fall forward on right. This set up, so to speak, should be continued for a long time after the patient is able to walk well without it, and having insisted upon its use so long the patient will continue to use it, and as a result never forgets to shift his balance, never becomes confused, and always possesses the best possible station. Of course it goes without saying that these steps must always be of a proper length and may be regulated by the painted stripe into quarter, half, or full steps; they must be contained within the limits of the stripe, whether narrow or broad.

Two conditions are frequently encountered which retard progress; one is ataxia of the upper extremity which prevents the use of canes until it is cured by exercises. The other is a more serious disability; namely, ataxia of the trunk. It is frequently mistaken for ataxia of the legs and if not recognized and proper trunk exercises employed, the results will be disappointing. Such errors are common and contribute to some of the apparent failures of this method. On the other hand, some years ago I saw walking across the floor of the New York Academy of Medicine, to the tune of an acclamation such as is usually reserved for Teddy, a woman purported to be cured of a severe ataxia of tabes by the Frenkel

method. This woman had had an attack of peripheral neuritis and would have been cured if she had tied a red string about her ankles.

A methodical and precise method for turning about must be taught to these patients, as frequently during this procedure they experience their greatest disability. The exercise for the upper extremities, for which the same general principles hold good, are performed with the assistance of drawing boards, checkers, peg boards suspended colored balls, etc., and need not be further described.

I have treated by this method about twenty patients; most of these were treated in the Cook County institutions, where for a period of ten months they conscientiously performed these movements twice daily for a period of thirty minutes each. The majority of these patients could walk without the assistance of attendants, but with the aid of either one or two canes or crutches. The others could be divided into the remaining three groups of Frenkel.

Certain conclusions may be drawn from the observation of this group of cases. In no case did the ataxia remain unimproved. In all the ambulatory cases the improvement was marked. All cases formerly walking with one cane were able to do without it. Cases using two canes in some instances were able to dispense with one; in others, with both. Cases walking with crutches were able to walk with the aid of a cane. Two cases showed practically a complete functional recovery, one at first unable or unwilling to walk outside the confines of the ward, became the grocer's boy for a store opposite the institution. The other now runs a chicken farm. All the ambulatory cases regained so much hope, energy, and confidence that they were able to utilize to the fullest their remaining functions. The cases which were either unable to stand or could walk only with the aid of attendants showed only so much improvement that they were able to attend to themselves much easier in eating, changing their position in bed, or attending to the calls of nature. In no instance was there any untoward result. In fact, the lancinating pains seemed to be less frequent.

A few questions may serve to clarify the situation. Is it practicable? It certainly is. No apparatus is necessary, the method is neither difficult nor complicated, and the patient may after a period of tutelage under the physician continue the exercises himself. Is it successful? Nothing

can answer this question as well as the fact that upon a visit to the institution three years after I had been in charge I found some of the patients practising the exercises on their own hook. Is this a cure? It is not. And although many brilliant results have been obtained and many patients have been greatly benefited, too much must not be expected of this method and too much must not be promised. To what may the failures be attributed? First, to the improper selection of exercises, carelessness, and to insufficiently continued movements. Second, to the too great destruction of sensory tracts and, third, to permitting patients to become unduly fatigued, which destroys more function than any method can produce.

What is the comparative value of those methods which employ only exercises without the aid of vision, and those employing vision? I have had experience only with the latter method where exercises without the assistance of vision are employed only after they have been mastered with its aid, and I can see no reason to employ another method.

25 East Washington Street.

A MODERN HOSPITAL FOR THE INSANE FROM THE STANDPOINT OF MED- ICAL SERVICE*

RESEARCH AND EDUCATIONAL WORK

H. DOUGLAS SINGER, M. D., M. R. C. P.

Director Illinois State Psychopathic Institute.

KANKAKEE, ILLINOIS

The modern hospital for the insane is a quite peculiar, composite institution dealing with the most widely varying kinds of disorder. At the one extreme it approaches the ordinary general hospital with patients suffering from various acute and chronic diseases, whereas at the other it approximates and even overlaps the reformatory and the penitentiary. The one factor common to this heterogeneous mixture is some disorder of conduct and behavior which renders those thus afflicted incapable of ordinary social life. Primarily, the motive for the segregation of these individuals was purely a selfish one, the protection of society from damage. The fate of those thus incarcerated claimed and received but little interest or attention so long as they were not allowed to escape. As civilization has progressed

*Read before the fifth annual meeting of Alienists and Neurologists under the auspices of the Chicago Medical Society, June, 1916.

it has come to be recognized that many such individuals require protection from themselves and from the world. With this humanitarian conception there has necessarily been a growing interest in conditions within the asylum and a corresponding improvement in the methods of care.

Within quite recent times we have begun to realize that the conditions included under the caption of insanity are worthy of study; that some are capable of recovery or prevention and that the magnitude of the problems concerned renders them of immense economic as well as humanitarian importance. This is well indicated by the widespread tendency to substitute the name hospital for that of asylum. This can mean nothing if it does not imply the application of hospital methods of study and research. We may therefore take it for granted that the need for facilities for research is fully appreciated and I may confine myself to the effort to indicate the character and variety of the problems to be faced and worthy of consideration in the planning and organization of such a hospital.

These problems may be broadly grouped for discussion under the following headings:

Care.

Treatment.

Prophylaxis and after-care.

It has already been pointed out that the problem as to how most safely and economically to care for these persons was for long practically the sole one. This was the natural outcome of the general impression that the insane were not capable of recovery. Consequently these institutions have been regarded as concerned purely with housekeeping details and this attitude is still far too prevalent even in official quarters. Yet, even with a knowledge of the real facts, it is true that, hospitalize as we may, the problem of care is still a highly important matter. Many of the inmates are doomed to a life-long residence in an institution and there is yet much to be done to make the conditions of such existence satisfactory. Even the most optimistic administrator will not venture to claim that the last word has been said even upon such simple and everyday matters as the best methods of housing, feeding, clothing and supervising such patients. The long list of papers in this symposium dealing with these questions is sufficient demonstration of the fact that there is still much to be learned and that these are legitimate topics for research and earnest consideration. Since they have already been widely

dealt with I shall pass them over without more comment. But permit me to indicate one direction in which research is especially needed and which requires proper equipment and qualified investigators. I refer to the employment and occupation of patients. This has its economic side but is of far more importance as a means of care for the patient. Occupational diagnosis will come to play a gradually increasing part in our social system at large, both for efficiency and economy. The methods for reaching reliable conclusions are still to be worked out, but there can be no doubt that it will prove a large factor not only in successful administration of the hospital, but also in the more important field of prophylaxis. Research along this line has only started and we are still in the stage of trial and error. Correlation of the results of such trials with the findings from detailed studies of the make-up and personality of the individual are still to be made. This means well-equipped and diversified industrial departments with facilities for education with careful observations and records. I am firmly convinced that there exist greater prospects of improvement in general welfare and upkeep, as well as economy in management, in this direction than in any other.

The problem of treatment may be considered under two categories. First is that which aims directly at the cause of the disorder and, second, that which is purely symptomatic. It is a great mistake to assume that the latter is merely temporizing and of no importance. All treatment is merely an adjuvant to the natural reactions of the body which must, in every instance be the real curative agency. Symptoms, properly understood, represent these reactions and are hence efforts towards the removal or neutralization of the cause. Yet, though more or less well adapted to deal with the disease or difficulty present, they may nevertheless do harm by interfering with other functions. Emotion, for instance, is a reaction of the body more or less adequately designed to meet conditions of the body and environment. But emotion implies an enormous upset in the general functioning of the body, changes in the pressure and distribution of the blood, interruption of digestion, etc., which may of themselves, if sufficiently severe and prolonged, cause the death of the patient. Fever undoubtedly is an important means of defense but may be so intense as to destroy the body it is defending. Hence symptom control is one of the most im-

portant duties of the physician and a study of symptomatology and symptomatic remedies of vital necessity.

Yet obviously measures directed towards the eradication of the *causa morbi* are the fundamental purpose of our treatment, for in this way we are enabled to permit and intelligently assist the symptoms to achieve the results for which they are designed. Upon this determination of the cause must also depend our ability to prevent disease which is the principal object of medicine today. While then not neglecting the study of symptoms and the effects which they produce we reach the really fundamental problem when we turn to consider etiology and pathogenesis.

Let me first point out that the problem of causation is an extremely complicated one requiring all kinds of investigation, and it is a mistake to think that the answer is to be found of necessity in the laboratory. The objective fact in all cases of so-called insanity is disorder of conduct in relation with social conditions as they are. In other words there is some disturbance in the adaptation of the effector organs of the body to the environment. Hence one must realize that the error does not necessarily lie in the muscles and glands of the body or even in the brain, which serves as the means of co-ordinating these organs with the conditions of the environment but may lie outside of the body altogether.

A simile may perhaps make this more clear. An automobile consists of a number of individual parts, each of which has a certain function to perform. These parts are so connected that, like the body deprived of the brain, they carry on a co-ordinated activity automatically within certain limits. But the automobile is required to maintain relations with a widely varying environment. The connecting link between that environment and the working parts of the machine is the driver who is able to control the various parts, and thus produce purposeful adjustments of the machine to conditions as they arise. Every now and then the machine under the control of its driver will commit, what may be described as an unsocial act, in the sense that it conflicts with the requirements of social organization. For instance it may kill a pedestrian. This may come about in various ways. First, it may be due to some defect in the machinery such as poorly constructed steel which by breaking destroys the steering apparatus. Or the error may lie in the driver who is

perhaps intoxicated. Again it may be in the pedestrian who perhaps has a fit and falls in front of the machine. But it must also be realized that the accident may happen without any material deficiency in the machine, the driver or the pedestrian. Such would be the case if either the driver or the pedestrian were untrained or wrongly instructed. Hence in order to determine the cause of the unsocial act it would not suffice merely to study the parts of the machine or even the condition of the driver; one must also investigate the pedestrian who here represents the environment.

In just the same way, to arrive at a conclusion as to the meaning of the social maladaptation which is called insanity, it is necessary to investigate the body organs of the patient, the mechanisms which adapt the functions of these organs to the conditions of the environment, that is to say his brain in action or mind, and the environment itself. Furthermore we have no right to conclude that, because we find certain deviations from the usual in any one of these spheres, we have therefore the whole facts. There may well be a combination of factors and some of the pathological findings may even be the result of the disorder instead of the cause. In his effort to avert the accident the driver of the automobile may do something which results in damage to parts of the car and we might reach an entirely erroneous conclusion that this damage had caused the accident. It may, it is true, have been a contributory factor in the sense that if the part in question had stood the strain placed upon it the method of meeting the situation adopted by the driver might have been successful in its purpose.

The hospital, then, must provide for the following classes of investigation:

The study of the bodily organs.

The study of the personality, the biologic psychology or habits of adjustment.

The study of the environment.

The great criticism which can be made of most of the work so far done is that it has been too one-sided, paying attention more or less exclusively to some one or other of these phases and perhaps to some one point. We cannot hope to obtain conclusions of real etiological value unless the material is studied from every point of view and the results considered as a whole. This means teamwork of a high order upon the part of the medical staff and there is room for men with spe-

cial interests in all directions. It also means a staff of considerably greater magnitude than that usually provided.

The study of the patient implies the provision of all known means of physical diagnosis, with properly equipped laboratories for clinical investigations of all kinds, serological, bacteriological, chemical and psychological. With these must be correlated the findings by histological methods upon material removed for the purpose or obtained postmortem. In estimating the value of the findings in any one of these departments it must never be forgotten that disorder of function and finally even structural change may be the result of social maladaptation or the effect of some intercurrent and unrelated disease process instead of the cause of the so-called insanity.

The investigations so far considered represent a study of the tools with which the patient has to work in the struggle for existence of himself and his race. We next come to the question as to how he uses them, his personality. For this purpose we have first the opportunity to observe his reactions to conditions which are subject to our control, that is to say his manner of meeting the situations in which we may place him, by question and otherwise, inside the hospital. This makes up a large part of what is called the mental examination of the patient. Unfortunately, it too often tends to degenerate into a mere routine and the purpose becomes reduced to an effort to tag a name onto the type of reaction. What is really needed is a detailed record of the adjustments which the patient makes under situations purposely planned for the investigation of this individual case. Obviously it must always contain an exact description of the situation as well as of the reaction. When thus carried out there becomes possible an analysis of the material and a more or less clear conception of the make-up and habits of adjustment of this patient at the time of the mental disorder. Such a description, when allotted a name, is often spoken of as a *diagnosis* of the insanity, but it really represents nothing more than the characterization of the mode of reaction. To this must be added the information as to methods of adjustment which were habitual to the patient throughout his life prior to admission to the hospital, obtained from every available source. At the same time there would be secured a story of the conditions under which the patient has lived, the heredity and the character of the

persons with whom he has been associated, upon whose training and example must depend much of the patient's personality. In so doing we are also fulfilling the requirements of the third factor mentioned above, the study of the environment.

The means whereby this information is to be obtained is an extremely important topic for consideration. Experience has shown that if we trust to the chance visits of friends and relatives we shall rarely succeed in achieving the desired result. Information obtained by means of letters and formal interrogatories is almost worthless because of the impossibility of cross-examination. Hence some other method is absolutely necessary and a department for the collection of information is earnestly recommended. Such a corps of field-workers will be of value not only for this purpose but also in connection with the problems of after-care and prophylaxis. Local conditions must largely determine the organization of such a department, but with it, if possible, it would be well to combine a dispensary or outdoor clinic for the purpose of advising incipient cases and the study of lesser and earlier degrees of faulty adjustment than those which are usually received inside the hospital. Such measures are necessary for effective research and are similar to the social service departments which now form so valuable an adjunct to the modern general hospital dealing with patients whose means prohibit avoidable loss of time or work.

The second phase of medical organization upon which I have been asked to touch is that concerning the educational functions of the hospital. These may be dealt with under two headings, the education of the physician and that of the public. Under the first we must consider the training of physicians in general and that of physicians for service in the hospital. It is still a fact that instruction in dynamic psychology and psychiatry is very inadequate in most of our medical colleges. One fact which tends to maintain this state of affairs is that the clinical material necessary for such teaching is to a large extent out of reach of the school by reason of compulsory state care of this class of patient. Another is a somewhat widespread tendency to regard psychology as a realm of myths and speculation more or less beyond the pale of practical medicine. The fact that every medical man is bound to meet and deal with many cases of mental disorder should be a sufficient answer to this attitude. But one

may go much further and state that a knowledge of psychology is essential to all medical practice.

Unfortunately, psychology is made to pay the penalty for the metaphysical fancies of the past as well as for the often undigested and poorly formulated developments and exaggerations of the present, with the consequence that the employment of the adjective "psychic" is for many an indication of the hopeless incompetence of him who uses it. We may compare the attitude of these self-styled "materialists" with one who insists that the only way to discover the cause of the killing of the pedestrian by our automobile is a study of the structure and functional activity of the parts of the machine and who adds that a failure to discover anything wrong is proof only of poor technique. Just so long as the physician ignores the psychic mechanisms of his patients will the various healing cults and other mystic remedies flourish. The doctor untrained in, and ignorant of, such dynamic factors in the maintenance of human life must often fail in his diagnosis and treatment even if he does not cause actual disaster.

Hence there is needed a close association between the hospital for the insane and the medical college whereby the material and the experience of the staff physician become available for teaching. Much is also to be gained by affording the graduate physician opportunities, through clinics and demonstrations, to appreciate and benefit by the special experience of the hospital. The advantages of such association are strictly mutual. The medical staff of the hospital suffers by the isolation which has usually been its lot and needs the stimulus of keeping in touch with the results and methods of research carried on in medical colleges.

For the physician who is to serve on the staff of a hospital something more than this general teaching is required. It is no more reasonable, either for patient or physician, to place the care and responsibility of such a service upon the shoulders of men not specially trained than it would be to give a surgical clinic into such control. The remedy lies in requiring all who enter the service to serve an apprenticeship under the direction of those more experienced on the staff. This to be effective must be carried out systematically, definite periods being allotted to training in all the different departments. Special courses of systematic instruction may also

well be provided in connection with the special research departments just as in all universities. Such instruction benefits not only the student but also, and perhaps to an even greater degree, the teacher.

Finally we come to the question of the education of the public in regard to which the duties of the medical staff of a hospital of this kind are also large. The reason for the existence of these special hospitals is the fact that its inmates are in some way incapable of social existence and hence the problems connected with its work must have a close and direct relation to society. More and more, as experience increases, are we forced to realize that the real hopes for the abatement of insanity lie in prevention rather than cure. For preventive measures to be successful the consent and co-operation of the public is essential.

Free access to the hospital and its work must be afforded to all persons whose interest is not mere morbid curiosity, and the staff should realize that such visitations, if properly employed, will assist in making their work more effective. The general practitioner who attends the clinics at the hospital and the properly trained social service worker afford a ready avenue for the transmission of information from the hospital to the public. The hospital reports and such journals as the *Institutional Quarterly*, published in this state, can be utilized to convey facts to many who are specially interested. The staff should be prepared to participate in such meetings as this and also to accept opportunities to address lay audiences under various auspices.

But in undertaking this work I feel that the very greatest care should be exercised to make sure of the grounds upon which such teaching is based and to avoid exaggerated and undigested statements which experience must always unmask for what they are worth. Such ill-advised enthusiasms as those, for instance, which have been at the back of most of the eugenics propaganda must do more harm than good, for they are based upon poorly observed and uncorrelated facts and they cannot possibly accomplish what is claimed for them. The reaction which follows the inevitable failure of such schemes, well intended as they are, cannot help but render the public more suspicious and difficult of approach in regard to future, better founded, efforts towards prophylaxis.

RECURRENT STREPTOCOCCUS VIRIDANS ENDOCARDITIS WITH UNUSUAL MENINGEAL COMPLICATION.

WALTER H. NADLER, M. D., CHICAGO, AND
RICHARD F. HERNDON, M. D., SPRINGFIELD.

Streptococcus meningitis, either when it occurs in the course of endocarditis or in other forms of sepsis, is almost invariably fatal. The case, here described,* of endocarditis due to *Streptococcus viridans* is of special interest by reason of the fact that symptoms of meningitis associated with streptococci in the cloudy cerebrospinal fluid on repeated punctures, occurred in the course of the disease and dominated the clinical picture for nearly two weeks, after which the symptoms subsided and the spinal fluid became clear; after death from cerebral embolism there were found signs of healing meningitis. These findings suggest recovery from streptococcus meningitis—an unusual occurrence. DuBois and Neal¹ have reported the recovery of a case of meningitis due to *Streptococcus pyogenes*. In a search of the literature they found three instances of recovery of streptococcus meningitis complicating otitis media. Mygind² reported six cases of otitic meningitis with recovery after operation, but did not state the nature of infection.

Case Report. The patient, a woman, aged 18 years, was admitted to the medical service of Drs. Tice and Slaymaker in the Cook County Hospital. October 14, 1915, complaining of pain in the legs and arms, of fever and sweats and of headaches. Two weeks previously she had developed a "cold" with cough and precordial pain which lasted 10 days. The day before admission she went to bed because of weakness, epistaxis and fever. There had been no real chill. Appetite was good. She had not menstruated for 3 months.

At the age of ten after a "cold" she had angina and pain in the extremities which kept her in bed for two weeks. One year ago she had a similar illness which lasted 4 weeks.

The patient was well nourished, but anemic and feverish. The left palpebral fissure was smaller than the right. At times the upper lid drooped. The pupillary reflexes were normal. The teeth appeared good, while the tonsils were diffusely reddened. No herpes. Scattered over arms and forearms and less

on chest and about knees were petechiae. The head was slightly retracted and the neck muscles were rigid. Precordial pulsation was marked. Apex in the 5th interspace 13 cm. from the mid-sternum. Heart dullness to the 3d rib superiorly, 3½ cm. to the right and 14 cm. to the left of the mid-sternum. The first apical sound was short and loud, preceded by a murmur which was localized, and accompanied by a systolic blow transmitted to the axilla and back. A presystolic thrill was present. Pulmonic second accentuated. A soft systolic blow was heard over the other valve areas. The radial pulse was regular and of fair quality. Blood pressure, 98-57. Spleen and liver were palpable. Ankles slightly edematous. No arthritis. Reflexes were all exaggerated, especially the right patellar. Kernig's sign was present. Hemoglobin 58 per cent (Dare). R. B. C. 3,840,000; W. B. C. 13,700. Urine was normal. Temperature, of septic type, was 102° F. on admission. Several times it fell almost to normal and remained low for several days. Later it became more irregular, reaching 104°.

Course. Upon admission, meningeal symptoms were most pronounced. The spinal fluid was turbid, under increased pressure, Noguchi positive, 280 cells per cm., 95 per cent of which were polymorphonuclear. Smears contained very numerous intra- and extracellular diplococci staining poorly or not at all by Gram's method, while cultures were negative.

The following day the fluid contained 2,000 cells per cmm. and many extracellular Gram positive diplococci. As it was thought that the apparently Gram negative organisms might be meningococci, 30 cc. of antimeningococcus serum was injected at the time of the first puncture. On the second and third days, also, 30 cc. of serum was used to replace about 20 cc. of spinal fluid withdrawn. On the third day meningeal symptoms were more marked. Ptosis of the left upper lid was complete.

On the seventh day two colonies of *Streptococcus viridans* were isolated in "shake" cultures of the spinal fluid. At this time a diffuse, profuse, erythematous rash with a few subcutaneous hemorrhages developed. On the tenth day the spinal fluid was much less turbid and the patient was brighter. 450 cells were present. On the eighteenth day, although spinal fluid was almost clear and no organisms were seen in smears, a single colony of *Streptococcus viridans* was isolated. There were 30 cells per cmm.

Three weeks after admission motor aphasia developed. The patient became semicomatose, temperature rose to 104°. The next day there was complete right sided hemiplegia. Ankle clonus was marked on right side, slight on left. Spinal fluid was again turbid, 1100 cells per cmm. A few cocci were found in smears and several colonies in cultures. On the 23d day right external strabismus appeared. Pupils were small and sluggish. On the 29th day the spinal fluid was clear, contained 10 cells per cmm. and smears and cultures were negative. The mental condition was improved. Spasticity of the right side. Later the patient became brighter and was able to move

*This case has been reported by Dr. Frederick Tice in the Medical Clinics of Chicago, 1916, 1. No. IV, p. 625 and No. V, p. 987.

1. DuBois, P., and Neal, J.: *Streptococcus Meningitis with Report of a Cured Case*, Arch. Pediatrics, 1915, XXXII, No. 1, p. 28.

2. Mygind, H.: *The Operative Treatment of Otitic Meningitis*, Jour. A. M. A., 1910, LV, 759.

the right arm slowly. Heart action was weak and irritable.

On the 26th day in the hospital the spinal fluid was clear. No organisms in smear or culture. On the following day, after the appearance of a fresh crop of petechiae on chest and right arm and a right conjunctival ocular hemorrhage, the patient died.

Blood culture made on the first day and on 6 subsequent occasions showed many colonies (10-15 per ccm. of blood) of *Streptococcus viridans* in pure culture.

The urine contained much albumin and many red blood cells on the 5th day. Cultures a few days later, and at no other time, contained several colonies of *Streptococcus viridans*. Ten days after onset of hematuria the urine again was normal.

Necropsy. The pericardial sac was obliterated by fibrous adhesions. The heart was greatly enlarged. The narrowed mitral ring measured 6 cm. in circumference. The mitral valve was deformed by calcareous and fibrous thickening. On the free border were two elevated areas approximately 4 mm. in diameter, situated on a base of calcareous material. These areas were soft, yellowish, easily torn from their attachment. On the left lateral wall of the left auricle was an area about 2 cm. in diameter on which were many slightly elevated, soft, yellowish, friable, easily detached thrombi, evidently due to implantation from mitral regurgitation. The other valves were normal. The spleen contained a small infarct. The cerebrospinal fluid did not seem to be increased in amount. The leptomeninges were hyperemic, with very slight fibrinous exudate along the course of the larger vessels, particularly on the right side. The spinal cord was not exposed. The brain contained a soft, gray, purulent, pea-sized area in the left internal capsule. There was a soft area about 2 cm. in diameter in the right temporal lobe in the anterior portion, adjacent to the middle cerebral artery.

Cultures made postmortem from the lesion of the right temporal area of the brain, and from the splenic infarct contained numerous colonies of *Streptococcus viridans*. Those from the mitral valve excrescences and from the auricular implantations contained *Streptococcus viridans* associated with *Staphylococcus albus*.

Cultures. All cultures made from the blood (upon 7 occasions) contained many colonies of *streptococcus viridans* in pure culture. From the spinal fluid a few colonies were isolated with difficulty (3 times in 7 attempts). Cultures of catheterized urine contained a few colonies only at the time of hematuria. Tonsil cultures showed *Streptococcus viridans* predominating. The streptococci from these sources and from the postmortem lesions were apparently identical. They were not autolyzed in bile.

Lactose, saccharose, salicin and inulin were fermented regularly, but not mannite and raffinose.

Complement fixation reactions, using patient's serum with an antigen of heat killed suspension of organisms, were not satisfactorily obtained.

Animal Inoculations. Of six rabbits receiving single intravenous injections of cultures derived from the blood, two showed increased pericardial fluid containing organisms. The myocardium and papillary muscles were studded with minute gray-white spots and the kidneys showed a few similar subcortical lesions, which in stained sections were found to consist of collections of streptococci and pus cells. The valves were normal in all cases.

Of three rabbits receiving two injections one showed hemorrhages of the tricuspid valve with exudate, another only hemorrhages, while the third presented only small, miliary hemorrhages in the lungs.

RESUME.

The case is one of chronic mitral disease with a recurrent infection with *Streptococcus viridans*. The septic character of the disease is shown by the demonstration in culture of organisms from the blood stream, spinal fluid and urine during life and from vegetations and infarcts postmortem.

The history indicates at least two infections with similar onset, four and two years previously. The portal of entry is not certain.

Unusual interest is attached to the predominance of marked meningeal symptoms together with the findings of a streptococcus localization at this site. The process had apparently begun to heal, as suggested by the changes in spinal fluid and by the necropsy findings, interrupted by the death of the patient as the result of cerebral embolism.

Streptococci in the spinal fluid, while very numerous in smears, were grown only with difficulty after repeated attempts. It is interesting to note that the spinal fluid became clear and bacteria-free after the use of antimeningococcus serum. Whether the serum exerted any non-specific bactericidal effect in hastening the healing of the meningeal inflammation is problematic. A similar favorable result followed its use in the case of DuBois and Neal.

THE CRIPPLED CHILD.*

FREDERICK CLEVELAND TEST, A. M., M. D.,

CHICAGO.

The subject of the crippled child is one that has been of deepest human interest from time immemorial. In proof one needs but recall the multitude of authors and artists who with pen or brush have set forth one circumstance or an-

*Read before the Chicago Medical Society, March 7, 1917.

other of this unfortunate victim of inexorable nature. His sufferings, too often helplessness, more than once have appealed to hearts careless or callous to adult woes.

And yet sympathy is by no means the sole emotion that should be aroused. The tragedy is greater far than that of pain alone and one that reaches deeply into our social organization. For in its ramification it stretches widely from the child himself as such and forms a problem involving not only the individual sufferer as a child, but also those upon whom he is at least a care and expense of time and money and often an almost overwhelming burden, mental as well as physical and financial. Nor does the problem limit itself to the childhood years, but too often persists and even increases should the sufferer grow to adult life, so frequently demanding much or all of the energies of some devoted kin or other caretaker in addition to the reduction or obliteration of the economic efficiency of the individual himself. How often are cripples dependent in part or entirely upon others for comfort or even continued existence, aside from being themselves able to play but little or no part in the maintenance of our social structure which for its fullest development should have the cooperation of us all at our uttermost endeavors. Distorted skeletons and muscles palsied or drawn unavoidably lay a toll upon the nervous and mental constitution of the one afflicted, the effect of which we see on every hand.

On the mother while she lives in most part falls the heaviest burden. She it is on whom thrust strongest those keen, sorrowing sympathies that only motherhood can bring and on her, too, lie the greatest physical demands. Small wonder that so often both nervous and physical organization gives way under the continued double strain. But others of blood bond have their parts to play and the influence and need for help draws frequently upon strangers, as nurses, medical advisors, dispensaries, hospitals and charitable organizations; the last in their turn dependent for support upon still other members of society. So it is that the crippled child, frail, suffering bit of humanity that he is, reaches out his beseeching hands to all of us.

For present purposes, the children crippled through tuberculous infection are sufficient topic, but they are only a small third part of our crip-

pled children, whom we may briefly review. Slightly less in number than the tubercular deformed, are those on whom rickets has put its mark, in shape of bowlegs or knockknees. Of all classes of deformities, perhaps these have the greatest probability of being restored to anatomical correctness and consequent maximum efficiency in future life. Nor if neglected and untreated does rickets disable its victims to so great a degree, generally speaking, as do some other causes of deformity. Beginning so early in the life of the individual and exerting a deforming influence for so comparatively short a time, Nature by herself in the ensuing years of growth frequently, almost or entirely, obliterates the early ravages. And when such is not the case, in the vast majority of instances, the damage is more along esthetic than disabling lines, and yields to self-treatment with loose trousers or long skirts.

Such, however, is not the case where the ricketty deformity takes the phase of scoliosis, which, with lateral spinal curvatures due to other causes, make up some ten per cent of cripples. Here there is no spontaneous tendency to self-correction, but rather to persistent and rapid increase, too often difficult of full correction, despite all methods, however ingenious or apparently anatomically correct, where skeletal changes of much degree present. The scolioses of non-ricketty origin, whether paralytic or of various static causations, present difficulties of their own, which must be combated whenever possible, or a distorted torso with displaced and damaged vital organs will generally be the ultimate result and the economic efficiency suffer along with the general health. One unfortunate feature in connection with scoliosis, especially in cases coming to dispensaries, is that the condition is either not recognized until it has become well established or it has been neglected in the belief that the child will outgrow it, so favoring the permanence of the deformity with its resulting deterrent influence on the individual's efforts for livelihood. Too much stress cannot be laid on the importance of early diagnosis and uninterrupted treatment.

Anterior poliomyelitis, from available statistics, seems to have furnished in the past some ten per cent. of the deformities of childhood in Chicago. In New York the percentage has been somewhat less. It will, however, take but few epidemics such as have prevailed of recent years

in various parts of the United States, to greatly increase this proportion. Though the resulting deformities range from helpless disability to but slight involvement of some of the foot muscles, the majority of cases present deformities of one or both legs below the knee, fortunately often amenable to treatment by operation or brace or both, with resultant improvement in locomotion and consequent better facilities for wage-earning, as well as physical comfort. One feature to be considered is the liability of some cases to a scoliosis, through unequal balance of body muscles. The trophic disturbances also often retard limb development so that through a shortened leg a static scoliosis may ensue. A census under way among the crippled children attending Chicago schools, indicates that fully one-third of them owe their deformities to anterior poliomyelitis, which may be interpreted as indicating the ambulatory nature of many of these deformities or at least that mental disturbances do not keep pace with the muscular.

The opposite is the case with the paralyses of cerebral origin which furnish some two or three per cent. of all cases of deformity. It is the rule rather than the exception in these cases for the spastic muscles to be accompanied by noticeable or marked lack of proper mental development, too often failing to respond adequately to the most conscientious efforts in training. It is perhaps here, with warped body and scarred brain, that the crippled child finds his most pitiable exemplification. And yet, many of those so afflicted can, by dint of proper care and training, be lifted into positions of self-helpfulness and even enabled to be self-sustaining.

Congenital defects, chief among which are clubbed feet and hip dislocations, constitute approximately ten per cent. of all deformities. Of these, the club feet are at the present time so generally subjected to treatment, with such usually satisfactory results, that as an element of adult disablement they are practically negligible, a state of things quite different from that prevailing in former generations, when many congenital club feet went on to adult life uncorrected. The percentage of correctible congenital hip dislocations, too, has greatly increased in the past twenty years and the condition is by no means the bugaboo of earlier years. Club hands, congenital shoulder dislocation, intra-uterine amputations, congenital elevation of the scapula, spina

bifida, and other less common congenital defects but difficult of alleviation, are fortunately rare.

Static foot deformities, per se, are comparatively infrequent among children, usually not appearing until adolescence or later. Probably an over-arching is the most common minor disturbance of the juvenile foot, sometimes most likely referable to an extremely light and unrecognized attack of anterior poliomyelitis, and again of doubtful origin. A true sag-foot—I prefer the term to the more common, but often inaccurate expression flat-foot—is not common in children, but may present after some severe systemic infections or be the result of rapid increase in body weight. Taut-foot, that tightening of the Achilles tendon and increase of the longitudinal arch, with the usual flattening of the transverse arch, which is so common a result of high-heeled shoes, rarely appears before high school age, and is practically a feminine deformity.

More common in Chicago children, are the deformities due to maiming accidents from street cars, automobiles or wagons with resultant amputations of feet, hands, legs or arms. In the more densely populated sections of the city, where the street is still the usual playground, despite the increasing number of small parks, children so crippled are by far too numerous.

Acute infections and congenital syphilis play their part, but it is a minor one compared with that of tuberculosis. From loop to suburb the bacillus strikes at the bones of its child victims among rich and poor to the amount, as before stated, of practically one-third of all the child cripples. In nearly one-half of these the spine is the part involved, with the hip affected in approximately a third of the cases, and the knee, ankle and other joints in lessening degree. The significance of this in disabling effect is readily perceived. Upon the integrity of the vertebral column is the stability of the whole body dependent, to say nothing of possible paralyses by invasion of the spinal cord and proper locomotion is incumbent upon normal legs. Tuberculous bone infection then chooses as foci those anatomical regions whose involvement most effectively disables the patient. Add to this the long course of the disease, the usual bone destruction, the liability of metastases, the small percentage of anatomically perfect cures and the considerable mortality, and we concede bone tuberculosis the most dread enemy of the crippled

child. Improved though our modern methods unquestionably are, we still must admit regretfully that our results are immeasurably less perfect than we should like and the more earnestly strive for further improvement. Immobilization and hygiene must be our keynotes in treatment; the first to prevent or lessen deformity, and the second to shorten the course of the infection. Brace, cast, frame or bone splint must be used as our best judgment dictates, coupled with the most nutritious diet, fresh air and lastly sun treatment, which in the past few years is forging to the fore as an adjunct whose value we have been slow in fully appreciating. The closing of discharging sinuses, sometimes of years' duration, during a summer's exposure of the involved area to the direct rays of the sun, at first for five minutes daily, and then with as rapid increase as possible, to the full period of daylight, is becoming more and more common and is encouraging to the highest degree. The use of vaccines and sera from the tubercle bacilli has been disappointing to many, and yet in the hands of others has seemed to a valuable adjunct. Personally it has seemed as though perhaps the failures might in part be due to an error in the protein substances selected for injections, as for instance, a bone infection due to bovine bacilli might theoretically be expected to yield, if at all, better if a preparation from bovine bacilli were employed, but the subject is as yet too controversial and the possibilities of mixed infection too great, to warrant any dogmatic assertions. But on the absolute necessity of immobilization and hygiene there can be no argument.

Chicago presents some interesting features in regard to the distribution of bone tuberculosis within its confines. Whether they are dependent upon the proven fact that a large proportion of bone tuberculosis in children are of the bovine type, cannot now be said. But the statistics at hand show that in an area three miles square, with the Stockyards in the center, the cases of bone tuberculosis comprise forty per cent. of all the cases of deformities. In the remainder of the city the percentage of bone tuberculosis cases to all other deformities is but twenty-nine and a half. Some of the cases in this category date back a quarter of a century, and there is no possibility of ascertaining whether the infection was of human or bovine type, and consequently,

it is but theorizing to recall that at that time there were many more tuberculous cattle herded in the stockyards than now is the case. The possibilities in the proximity of infected cattle, and of the inhalation of wind-borne bacilli, however, suggest a plausible speculation. Be that as it may, the same statistics show a percentage of but twenty-nine for tuberculous bone deformities on the West Side, in spite of all its many congested tenement districts.

The ethnology of the crippled child is of no small interest. To go back to the deformities due to rickets, by far the majority of such cases in Chicago are, by recent ancestry at least, from sub-tropical regions, particularly those lying about the Mediterranean, as they occur chiefly among the Italians, Greeks, Syrians and Negroes, in whom over eighty per cent. of the deformities are rickety. The Scandinavians show only ten per cent.; the Irish, fifteen; the Germans, twenty, and the Americans, twenty-five. But the term American in this sense is an elastic one, though it is intended to cover at least two generations in this country.

As regards scoliosis, it comprises over twenty per cent. of deformities in Germans and Bohemians, fifteen in the Irish, and but six in the Americans, while among the Mediterranean races the cases are so few as to be notable.

Anterior poliomyelitis appears to be quite indiscriminate in its selection of races.

Congenital deformities make eleven per cent. of the American deformities, and ten per cent. each in the Irish, German and Scandinavian; five per cent. in the Polish and but two per cent. among the Negroes.

In contradistinction to rickets, more northern regions give a greater susceptibility to bone tuberculosis, as among Americans these deformities form forty-three per cent. of the whole, while the English, Irish, Scandinavians and Poles show almost fifty per cent. each. The Germans are somewhat less, with thirty-five per cent.; the Negroes have about thirteen per cent. of their deformities tuberculous, and the Mediterranean races suffer comparatively little, at least in Chicago, from bone tuberculosis.

It would appear, then, that in this city, perhaps the most cosmopolitan in America, the problem of the crippled child is of peculiar importance, as the various ethnic strains allow him

to appear in protean forms. Considering that the bulk of our population is of North European ancestry, and that those nationalities have proven the most liable to tubercular infection, it seems likely that the problem of bone tuberculosis is the one which will require the most vigorous struggle. But let us so conduct ourselves that our Crippled Child, be he Briton, Scot, Celt, Scand, Teuton, Slav, Frank, Latin, or Greek, when he arrives at manhood, may prove a sound American.

SPECIAL BULLETIN STATE BOARD OF HEALTH

Several numbers of *Illinois Health News*, the official bulletin of the State Board of Health, are now ready for the mails, and will be found to be especially interesting publications devoted to special lines of public health and sanitary work.

The December number contains a summary of the activities of the Board of 1916, and has been held back on account of pressure of work in the office, making it impossible to obtain all the data necessary for this annual report. The January, February, March, April and May numbers are all special numbers, devoted to dairies and dairy inspection, water supply and sewage disposal, child welfare and the management of baby week and baby shows, and rural sanitation and sanitary privies and well protection. The April number is devoted to the recent meeting of the Illinois Public Health and Welfare Association and to the outline of the plans of the new Department of Public Health.

NEW CIRCULAR ON CLEAN-UP CAMPAIGNS

The State Board of Health has recently issued a useful circular on clean-up and anti-fly campaigns. This circular will be sent in any reasonable quantities without cost upon application to the Secretary of the State Board of Health, Springfield, Illinois.

This circular, of sixteen pages, is devoted to the details of arranging and handling clean-up campaigns. There is added a section, prepared by the Bureau of Sanitary Engineering, devoted to the plans of simply-constructed fly traps.

MUNICIPAL SANITARY SURVEYS

The city of Quincy is undergoing a "birdseye sanitary survey" which is being carried out by a representative of the United States Public Health Service at the instance of the women's clubs of that city.

A sanitary survey is contemplated by the people of Freeport.

The April number of *Health News* will contain a preliminary report of the sanitary survey of Cumberland County, made through the cooperation of the United States Public Health Service and the State Board of Health under the direction of Surgeon L. L. Lumsden, of the Public Health Service.

IMPROVED WATER SUPPLY FOR JACKSONVILLE

As the result of an appeal from the city of Jacksonville, the State Board of Health, the State Water Survey and the State Geologic Survey have presented a plan for the development of an adequate supply of pure water. For the time being the city will increase the number of wells now employed and, in the future a system of larger supply will be worked out.

'T WAS EVER THUS

"The Devil was sick,
The Devil a monk would he.
The Devil got well,
And Devil a monk was he."

When I am well I josh the doc, and say his pills are made of chalk, which never cured a human ache; that all his science is a fake. I roast him bitterly because he is too handy with his saws, and seems so anxious to remove one's backbone from its oldtime groove. But when my organs all go wrong, and I'm no longer hale and strong, but doubled up with grievous pains, clear from my fetlocks to my brains, the doctor is my only hope; I clamor for his pills and dope. And if he brings his saw and spade, and says he thinks he'll have to wade all through my system with the same, I say, "Go on, and hew my frame!" And when I'm lying on my bed, with poultices upon my head, I murmur softly to the nurse, "The good old doc no more I'll curse! His science kept me from the grave, and after this I will behave." But when I'm on my feet once more I hang around the corner store, and say the doctor is a fake who couldn't shoo away an ache. Thus, when our cares have taken wings we hoot and jeer at solemn things.—*Chicago Daily News*.

WALT MASON.

DO YOU KNOW THAT

The constitution of the United States doesn't mention health?

Procrastination in sanitary reform is the thief of health?

A book on "Exercise and Health" may be had free for the asking from the United States Public Health Service?

Not everybody can achieve greatness, but everybody can be clean?

If you sow a hygienic habit you reap health; reap health and you attain longevity?

Railway cars would be sanitary if it weren't for the people in them?

America's typhoid fever bill is more than \$270,000,000 a year?

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1915-16

PRESIDENT.....WILLIAM L. NOBLE, Chicago
 PRESIDENT-ELECT.....E. B. COOLLEY, Danville
 FIRST VICE-PRESIDENT.....C. F. NEWCOMB, Champaign
 SECOND VICE-PRESIDENT.....R. A. McCLELLAND, Yorkville
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARP, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, Chairman, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, Managing Editor, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksonville
 D. R. MACMARTIN.....Chicago
 C. B. KING, Chairman.....8938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, Secretary.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

MAY, 1917

Editorials

My Country First, Then

BLOOMINGTON.

Illinois State Medical Society,

May Eight, Nine and Ten.

Welcome.

Yes, we are preparing to welcome fifteen hundreds guests at our state meeting this year. Bloomington does things right. You will be met at the depot with autos and will not be left alone until you are cosily located in your quarters for the week. Should our hotels prove inadequate our good people will open the best homes in the city to you and you will be escorted to your room, where you will sympathize with the poor fellow who has to put up with a mere hotel. If anyone has to do without a bed that week it will be the Bloomington doctors, for they

will be so busy showing you a good time they will have no time to sleep. Remember, Wednesday is ladies' day. And, by the way, if you must have a private room, just notify me that you will bring your wife and I will see that you get it. Clubs all have open house that week for the entertainment of the doctors; a stag affair that will rejuvenate the most aged. For reservations write Dr. L. B. Cavins or myself and we will see that you get it.

Don't think because you have written one hotel and failed to get reservation that there is no room for you. *There is room for all.*

Come.

T. D. CANTRELL.

THE BLOOMINGTON MEETING.

Now is the time for every member of the Society to arrange to attend the annual meeting at Bloomington. It is also the time for every member to show interest and loyalty to the State Society. No state medical society is giving as much to its members as the Illinois Medical Society is giving, and the members owe it to the Society to attend this meeting and assist in making the Society serve the profession more fully.

The day has passed when a state medical society meets, holds a scientific meeting, a formal social function, hands a compliment to some few members by electing them to office, and returns home, its labors ended. The activity of the various committees and officers has been greater during this year than in any year of the society's existence, and each year will call for more work from them, than on preceding years. This the members should appreciate fully, and appreciating it attend the one yearly meeting, giving the committees and officers the benefit of their counsel.

The program this year we think is an unusually good one. Bloomington will treat you royally. You, Doctor, are missing a treat if you do not attend, and also, Doctor, you are not assisting the Society of which you are a member or the profession which you love, by remaining home.

EYE, EAR, NOSE AND THROAT SECTION.

The officers of the Section on Eye, Ear, Nose and Throat have succeeded in securing many of our leading men to read papers and give demon-

strations for our meeting. The program will fully attest to the fact that it is a good one, and should be the means of bringing out a large representation of men in our specialty. We would urge upon our confreres the desirability of having you with us on this occasion. Tuesday, May 8th, the day (from 10 a. m. to 5 p. m.) will be devoted to Clinics and Demonstrations; the work of the morning will be at St. Joseph Hospital and the afternoon at Brokaw Hospital. Luncheon will be served at the noon hour. The evening of May 9th at the Country Club will occur the banquet. The hour is 7 p. m. The price per plate is \$2.50. Kindly note the attached card and send in your acceptance at once. Wednesday, May 9th, the day will be devoted to the reading of papers. Place of meeting will be Auditorium of the Masonic Temple. Session will convene at 9:30 a. m. During the meeting days special entertainment will be provided by the local committee. Speakers at the banquet will be Dr. Kellogg Speed, who will give us a talk on War Experiences in France, illustrated with stereopticon slides, and with special reference to the Eye, Ear, Nose and Throat. Mr. Robert J. Folonie, Attorney of the Illinois State Medical Society, will give us a snappy talk on a subject that will be enlivening to the occasion. In addition, there will be several stunts arranged by the local committee.

Begin now arranging your work so you may attend this meeting and we sincerely trust that you will be with us both at the Clinic on Tuesday, May 8, and the Session Work on Wednesday, May 9, and thus contribute to the undoubted success of the meeting.

Faternally yours,

RICHARD J. TIVNEN, President,
Suite 800 Monroe Building, Chicago.

J. SHELDON CLARK, Secretary,
State Bank Building, Freeport.

ILLINOIS STATE MEDICAL SOCIETY SIXTY-SEVENTH ANNUAL MEETING.

Bloomington, May 8, 9 and 10, 1917.

ORDER OF PROCEEDINGS

Registration Office and Headquarters in the Exhibit Hall in the basement of the Masonic Temple.

First Day—Tuesday Morning

10:00 Clinics for Section on Eye, Ear, Nose and Throat.

Eye and Ear, Brokaw Hospital.

Nose and Throat, St. Joseph's Hospital.

Tuesday Afternoon

2:30 Call to order of the Society in General Session by the President, William L. Noble, of Chicago. Auditorium of Masonic Temple.

Report of Chairman of the Committee on Arrangements, H. L. Howell, Bloomington.

3:00 Call to order of the Secretaries' Conference by the President, H. B. Henkel, of Springfield. Auditorium of Masonic Temple.

Tuesday Evening

7:00 Banquet of Section on Eye, Ear, Nose and Throat. Country Club. Dr. Kellogg Speed and Mr. R. J. Folonie, both of Chicago, will speak at the banquet. Price per plate, \$2.50.

8:00 Call to order of the House of Delegates, by the President, William L. Noble. Blue Lodge Room Masonic Temple.

Second Day—Wednesday Morning

9:00 Call to order of Sections One and Two for Reading and Discussion of the Papers of the Program. Auditorium of Masonic Temple.

Call to order of the Section on Eye, Ear, Nose and Throat, R. J. Tivnen of Chicago, Chairman. Blue Lodge Room, Masonic Temple.

Call to order of the Section on Public Health and Hygiene. G. F. Ruediger of La Salle, Chairman. Basement of Masonic Temple.

12:30 Adjournment for Luncheon.

Wednesday Afternoon

2:00 Call to order in General Session by the First Vice-President, C. F. Newcombe, of Champaign. Auditorium of Masonic Temple.

President's Address, William L. Noble, Chicago.

2:30 Reconvening of the Sections.

Oration in Medicine, Aldred S. Warthin,
Ann Arbor, Michigan.

Third Day—Thursday Morning
9:00 Call to order of Sections One and Two
for the Continuation of the Program.
11:00 Oration in Surgery, Alexius McGlannan,
Baltimore, Md.
12:30 Adjournment for Luncheon.

Thursday Afternoon
1:30 Reconvening of Sections One and Two.
4:00 Call to order by the President to Receive
the Report of the House of Delegates.
Induction of the President-elect.
5:00 Final Adjournment.

ENTERTAINMENT FOR MEMBERS AND LADIES
Wednesday Afternoon
12:00 Automobile Ride.
1:30 Luncheon, Bloomington Country Club
House.

Wednesday Evening
7:30 Theatre Party.

OFFICIAL PROGRAM.
SECTION ONE.
Frederick Tice, Chairman, Chicago.
C. Martin Wood, Secretary, Decatur.
SECTION TWO.
James H. Finch, Chairman, Champaign.
John S. Nagel, Secretary, Chicago.

Wednesday, May 9, 1917, 9 A. M.
Diabetes—The Initial Fast and Tolerance
TestingE. J. Brown, Decatur
Discussion, A. C. Croftan, Chicago.
A New and Efficient Method for the Diag-
nosis and Determination of the Cure of
Gonorrhea.....Louis D. Small, Chicago
Discussion, C. Hugh McKenna, Chicago.
Discussion, Darwin Kirby, Champaign.
Radium.....Albert Welfeld, Chicago
Discussion, W. A. Melton, Warrensburg;
Henry Schmitz, Chicago.
Caesarean Sections.....H. M. Orr, La Salle
Discussion, George B. Kelso, Bloomington;
T. J. McKinney, Champaign.
Constipation, Its Causes and Management..
.....C. E. Wilkinson, Danville
Discussion, L. C. Taylor, Springfield.

Late Results of Goiter Operations.....
.....E. P. Sloan, Bloomington
Discussion, Frank Buckmaster, Effingham; C.
U. Collins, Peoria.
Hemolytic Jaundice.....C. A. Elliot, Chicago
Discussion, W. H. Nadler, Chicago.

Wednesday, 2 P. M.
President's Address..William L. Noble, Chicago
Oration in Medicine—"The Role of Syphilis
in Internal Medicine".....
....Aldred S. Warthin, Ann Arbor, Michigan
Prostatectomy in Tabetics.....
.....E. Starr Judd, Rochester, Minn.
Individualization in the Treatment of Sur-
gical Inflammations
.....Edward H. Ochsner, Chicago
Discussion, George G. Davies, Chicago; Ben-
jamin F. Lounsberry, Chicago.
Roentgen Findings in Luetic Lesions.....
.....E. S. Blaine, Chicago
Discussion, W. G. Bain, Springfield; H. W.
Grote, Bloomington.
VagatoniaFrank P. Norbury, Springfield
Discussion, W. A. Crooks, Rock Island.
The Lower Abdominal Incision.....
.....Henry T. Byford, Chicago
Discussion, Frank T. Andrews, Chicago;
Franklin H. Martin, Chicago.
One Step Further in the Treatment of Acid-
osis in Children
.....H. C. Blankmeyer, Springfield
Discussion, Joseph Brennemann, Chicago.
Operation for Cystocele by the Abdominal
RouteW. L. Gray, Champaign
Discussion, T. J. Watkins, Chicago; F. W.
Barton, Danville.

Thursday, May 10, 1917, 9 A. M.
SYMPOSIUM
(Papers limited to fifteen minutes.)
Specificity and Non-specificity of Vaccines
.....D. J. Davis, Chicago
Vaccines for Prophylaxis.....
.....G. F. Ruediger, La Salle
Vaccines in Internal Medicine.....
.....Louis J. Mix, Chicago
Vaccines in Typhoid Fever.....
.....S. R. Slaymaker, Chicago
Vaccines in Pertussis.....
.....Henry W. Cheney, Chicago

Discussion, O. L. Schmidt, Chicago; F. J. Mittau, Decatur.

Head Injuries with Special Reference to Their Intracranial Complications.....

.....T. A. Davis, Chicago

Oration in Surgery—"The Conquest of Cancer".....Alexius McGlannan, Baltimore, Md.

The Physician and the Proof of Death or Disability, for the Insurance Company..

.....C. U. Collins, Peoria

Discussion, S. E. Munson, Springfield.

Fracture of the Pelvic Bones and Resulting

Injuries to the Urethra and Bladder.....

.....H. C. Mitchell, Carbondale

Discussion, O. O. Stanley, Urbana; Carl E. Black, Jacksonville.

Surgical Emergencies in the Uro-genital

Tract and Their Management.....

.....F. Kreissl, Chicago

Discussion, E. P. Sloan, Bloomington; Lewis Wine Bremerman, Chicago.

"Lest We Forget," or Crawford W. Long, the

Discussion, C. U. Collins, Peoria.

First Anesthetist....C. B. Johnson, Champaign

Role of the Prostate in Acute Gonorrheal

InfectionsBen Baird, Galesburg

Discussion, C. M. Rose, Galesburg; W. L. Karcher, Freeport.

Morbidity Incident to Obscure Hernias....

.....J. L. Wiggins, E. St. Louis

Discussion, Don Deal, Springfield; W. F. Grinstead, Cairo.

Plastic Surgery.....Lawrence Ryan, Chicago

Filariasis from a Surgical Standpoint.....

.....H. M. Greaves, Sidney

Discussion, J. S. Mason, Urbana.

An Etiological Study of Arthritis.....

.....Warren L. Rainey, E. St. Louis

Discussion, Nathaniel Allison, St. Louis, Mo.; Philip Kreuscher, Chicago.

SECTION ON EYE, EAR, NOSE AND THROAT

BLUE LODGE ROOM, MASONIC TEMPLE

R. J. Tivnen, Chairman, Chicago.

J. Sheldon Clark, Secretary, Freeport.

EYE, EAR, NOSE AND THROAT CLINICS

Tuesday, May 8

Eye and Ear Work at Brokaw Hospital beginning at 10 a. m.

Luncheon at Brokaw Hospital.

Nose and Throat Clinic at St. Joseph Hospital, Tuesday afternoon

Banquet.—At 7 p. m. a banquet will be given for the section at the Country Club, at which special entertainment will be provided. Dr. Kellogg Speed will give an illustrated talk on "Surgical Experiences in France, With Special Reference to Eye, Ear, Nose and Throat." Mr. Robt. J. Folonie, attorney for the Illinois State Medical Society, will give a talk on a subject that will be of interest to all. Price per plate, \$2.50.

Wednesday, May 9, 1917, at 9 A. M.

Reading of papers will commence at 9 a. m., Blue Lodge Room of the Masonic Temple. A stereopticon will be provided. Papers limited to 10 minutes and each discussion at two minutes.

Program.

Treatment of Catarrhal Deafness. M. F. Arbuckle, E. St. Louis. Discussion, I. M. Miller, Kewanee.

What the State Can Do to Prevent Blindness. Willis O. Nance, Chicago. Discussion, A. L. Adams, Jacksonville.

The Sub-Mucous Operation. John A. Cavanaugh, Chicago. Discussion, Oliver Tydings, Chicago.

Treatment of Membranous Cataract. Harry Woodruff, Joliet. Discussion, Francis Lane, Chicago.

Operative Procedures on the Nasal Accessory Sinuses. Illustrated. Norval Pierce, Chicago. Discussion, A. H. Andrews, Chicago.

"Radical Mastoid Operation; Its Termination with Reference to Hearing and Suppuration." Charles H. Long, Chicago. Discussion opened by C. C. Clement, Chicago.

Eye and Ear Work in a General Hospital. Frank Allport, Chicago. Discussion, Arthur M. Corwin, Chicago.

The Management of Tonsillar and Adenoid Hemorrhage. Henry R. Boettcher, Chicago. Discussion, Joseph Z. Bergeron, Chicago.

Primary Mastoiditis With Report of Case. Robert Sonnenschein, Chicago. Discussion, Wright C. Williams, Peoria.

Depressed Nasal Deformity Corrected by Bone Transplantation. L. Ostrom, Rock Island. Discussion, Frank E. Brawley, Chicago.

The Treatment of Vitreous Opacities. Wesley Hamilton Peck, Chicago. Discussion, James W. Dunn, Cairo.

The Importance of After-treatment Following Tonsillectomy. C. F. Burkhardt, Effingham. Discussion, John E. Deal, Springfield.

Optic Nerve Involvement in Tabes and General Paresis on the Line of New Investigation. Geo. F. Suker, Chicago. Discussion, R. C. Matheny, Galesburg.

Some Observations on the Decompression Operation on the Hypophysis by the Nasal Route. Otto J. Stein, Chicago. Discussion, J. Holinger, Chicago.

Management of Malignant Disease of the Upper Respiratory Tract. Illustrated with stereopticon slides. Joseph C. Beck, Chicago. Discussion, S. A. Friedberg, Chicago.

The Kronlein Operation. Edward E. Edmondson, Mt. Vernon. Discussion, Mayer H. Lebensohn, Chicago.

The Use of Bacillus Coli Communis in the Treatment of Tuberculosis of the Larynx. Harry Kahn, Chicago. Discussion, Otto T. Freer, Chicago.

Operation for Anterior Synechia With Report of Cases of Secondary Glaucoma and Staphyloma in Which It Was Used. Chas. G. Darling, Chicago. Discussion, H. Gradle, Chicago.

The Use of Trichloroacetic Acid in the Treatment of Atrophic Rhinitis. W. G. Hatch, Rockford. Discussion, Thomas O. Edgar, Dixon.

Presentation of a Device to Immobilize the Head and Eye Lids During Operations on the Eye Ball. E. R. Crossley, Chicago. Discussion, E. H. Garraghan, Chicago.

Diagnosis of Acute Mastoiditis and Indications for Operation. A. E. Sherman, Aurora. Discussion, Cassius M. Craig, Champaign.

SECTION ON PUBLIC HEALTH AND HYGIENE

Gustav F. Ruediger, Chairman, La Salle.

Grace H. Campbell, Secretary, Chicago.

BASEMENT OF MASONIC TEMPLE

Wednesday, May 9, 1917, at 9 A. M.

The Physician and Public Health.....

.....William E. Park, Rockford

Some Phases of Medical Supervision of Em-

ployeesW. E. Post, Chicago

Some Observations on the Epidemiology of

Poliomyelitis.....C. W. East, Galesburg

Practical Methods of Sewage Disposal.....

.....Edward Bartow, Univ. of Illinois

Medical Legislation

.....C. St. Clair Drake, Springfield

The Division of Engineering of the State

Board of Health

.....Mr. Paul Hanson, Springfield

Hygiene of Pregnancy...Effa V. Davis, Chicago

Studies in Meningitis.....A. Levinson, Chicago

SYMPOSIUM

The Responsibility of the State to the Epileptic ChildJ. C. Krafft, Chicago

The Responsibility of the State to the Nervous ChildJ. W. Van Derslice, Chicago

The Responsibility of the State to the Choreic Child.....C. B. King, Chicago

SECRETARIES' CONFERENCE

H. B. Henkel, President, Springfield.

Flint Bondurant, Vice-President, Cairo.

Ostella Blakely, Secretary, Fairfield.

AUDITORIUM OF MASONIC TEMPLE

Tuesday, May 8, 1917, at 3 P. M.

President's Address...H. B. Henkel, Springfield

The Organization of Medical Legislative Work in the County Society.....

.....F. C. Gale, Pekin

The Duties and Problems of the Secretary of an Active County Medical Society.....

.....T. G. McLin, Jacksonville

The Importance of Legislative Work.....

.....Don Deal, Springfield

Medical Organization in Reference to Legis-

lative WorkT. D. Doan, Scottville

EXHIBITORS

Horlick's Malted Milk.

The Loeser Smith Co.

Taylor Instrument Co.

Sharp and Smith.

Wm. Meyer and Co.

Weder Manufacturing Co.

Radium Chemical Co.

The Abbott Laboratories.

J. R. Siebrandt.

W. B. Saunders Co.

Standard Oil Co.

Mellins Food.

Lederle Antitoxin.

Reed and Carnrick.

Phillips Chemical Co.

P. Blakiston & Co.

Central City Chemical Co.
 The Standard Laboratories.
 W. D. Allison Co.
 John McIntosh & Co.
 A. S. Aloe & Co.
 Childs Drug Co.
 Geo. W. Birde & Co.
 C. V. Mosby & Co.

MEDICAL MEN FOR THE ARMY.

The Committee on Medical Preparedness is endeavoring to organize the medical forces of this state for service in the United States Army. The government wants to know where to get medical men, and wants to have them ready for service.

It is a great opportunity for the young man who has not yet built up a practice. It will, of course, be a sacrifice for the older man who has an established clientele demanding his service, but sacrifice must be, and the older men must go if called upon.

We predict there will be no trouble in raising the quota of medical men needed from Illinois. In fact, we are satisfied that several times the required number needed could readily be secured if necessary. The medical profession has always carried its full responsibilities and will now. When the president calls, the profession of Illinois will respond, even to the last man.

MEDICAL MEN FOR THE NAVY.

Is there discrimination in choosing medical men for the Navy? If so, why?

These questions may well be asked. Just why an order is issued from the office of the Surgeon General of the United States Navy to accept applicants who are graduates of Class A medical schools without medical examination for the naval service, should be explained. It is manifestly unfair and undemocratic to refuse the graduate of a Class B school the same privilege that is offered the graduate of a Class A school. The graduate from a Class B school may be just as patriotic, and it is just possible he may be better fitted.

A compilation of results of State Board examinations, such as was recently issued by the Journal of the American Medical Association, does not show all of the poorly equipped men have graduated from Class B schools. Such a

report intimates that a number of Class A schools are not turning out men so well equipped as some of the Class B colleges. So far as medical education is concerned, it may be well to classify medical colleges as A, B, C, etc., but such a classification has no place in the United States Navy or Army. Examine the men and see if they are fitted for the service.

If a man is a graduate from a school recognized by the state board of examiners of the state in which the school is located, he should have the privilege of application and examination for the government service, and it is not well if a small clique is influencing the naval authorities in such relations.

It is to be regretted if our highest naval medical authorities take such a narrow, limited view, and it will have a very deleterious effect on the committees authorized by the president to raise a medical force for the government service. When the great state of Illinois examines the permits students from certain schools to practice, it is hardly pertinent for the Surgeon General to say all men from these schools are ineligible for government service.

AMERICAN PROTOLOGIC SOCIETY.

The American Protologic Society will hold its Nineteenth Annual Meeting in New York City, June 4 and 5, 1917. Headquarters and place of meeting, Hotel Astor. The profession is cordially invited to attend all meetings. The program promises some good papers, and, no doubt, the meeting will be well worth attending.

THE ALIENISTS AND NEUROLOGISTS.

The annual meeting of Alienists and Neurologists will be held Monday, July 9, to Thursday, July 12, 1917, in the Red Room, La Salle Hotel, Chicago, under the auspices of the Chicago Medical Society. Dr. George A. Zeller will act as chairman. The program will be mailed June 28, with abstract of each paper. Contributors to the program are solicited. This is a society without a membership fee.

Address Bayard Holmes, M. D., Secretary A. & N., Room 1218, 30 N. Michigan Ave., Chicago.

Contributions of the subjects listed on the following tentative program are desired. A synopsis of each paper to be placed upon the permanent

program must be in the hands of the secretary on or before Saturday, June 23.

PROGRAM TUESDAY, JULY 10

MORNING SESSION 9:00 A. M. TO 12:30 P. M.

Topics—State Hospital Architecture; exhibition of plans and photographs. State Hospital Custody; Administrative Problems of State Hospitals; Hospitals for Cure, Research and Prevention; Colonies for the Productive Insane; Therapeutic Employment and Re-Education.

AFTERNOON SESSION 2:00 P. M. TO 5:30 P. M.

Topic—General Paralysis of the Insane.

EVENING SESSION

One evening session will be held open for an entertainment or for important topics, should any arise. At present, Monday evening, July 9th, or Tuesday evening, July 10th, seem most preferable.

WEDNESDAY, JULY 11

MORNING SESSION 9:00 A. M. TO 12:30 P. M.

Topics—Maniac Depressive Insanity, and the Minor Psychoses; Delirium Tremens, Traumatic Mental Disturbances.

AFTERNOON SESSION 2:00 P. M. TO 5:30 P. M.

Topic—Legal Aspects of Insanity.

The evolution of legal practice involving the question of mental integrity. Relations of Insanity to Criminal Practice.

EVENING SESSION

Topics—Special Program. A joint meeting with the Chicago Medical Society in the Marshall Field Annex Building.

THURSDAY, JULY 12

MORNING SESSION 9:00 A. M. TO 12:30 P. M.

Topic—Dementia Præcox.

AFTERNOON SESSION 2:00 P. M. TO 5:30 P. M.

Topics—Epilepsy. The Feeble-minded.

NOTICE.

Rush alumni dinner will be held Wednesday, May 9, at the First Baptist church. Please notify the undersigned by 10 o'clock May 9, if possible.

F. C. VANDERVORT, Vice-President,
Bloomington.

Correspondence

A QUESTION OF IMPORTANCE.

A matter of serious importance to the medical profession has just been concluded in the Municipal Court of Chicago.

During the last winter, Dr. William A. Lurie, a practicing and licensed physician and surgeon, was arrested upon the complaint of George West, acting for the State of Illinois Dentistry Board, claiming a violation of the act prohibiting prac-

tice of dentistry. Dr. Lurie, after being arrested and placed in jail, was released on bond and the matter came on for hearing on April 12, 1917, before His Honor, Chief Justice Olson, of the Municipal Court and a jury. The questions raised by this case were as follows:

The complaint asserted a violation of law in that the defendant is alleged to have practiced dentistry without having secured a license as a dentist, and undertaken to treat a disease or lesion of the jaw. The Attorney-General gave as his opinion that a physician and surgeon may not treat any disease having its situs at any place in the jaw, and that this is by law made the field of the dentist exclusively. The import of this opinion was that a physician may not treat any disease affecting the jaw, as for example sarcoma of the jaw infection in the antrum of Highmore tuberculosis having manifestations in the jaw—caries of the jaw bone—osteomyelitis—*pyorrhea alveolaris*, although its origin be nephritis, diabetes, etc. The effect of this opinion is such that if given its full effect, if an anesthetic were administered to a patient for a tonsillectomy, and there was present also a fracture of the jaw or a resection of the jaw were necessary for a fibroma, that a dentist would have to be called in to render that portion of the service relating to the jaw.

The particular treatment on which the complaint in question was based was that of draining an antrum *per ora* at the site of the second bicuspid, and the antrum infection extending through the floor of the antrum into the adjoining jaw tissue was curetted. There was a condition of the jaw which is ordinarily classified the loose designation of *pyorrhea alveolaris* (the term literally means pus discharging from the jaw). The physician has so long felt secure in his right to correct human ailments wherever they may exist that it may come as somewhat of a shock to find that the Dentistry Act, so-called, defines the practice of dentistry as the act of *any* person "who may treat or profess to treat any of the diseases or lesions of human teeth or jaws, or extract teeth, or prepare and fill cavities in human teeth, or correct malposition of teeth, or supply artificial teeth as substitutes for natural teeth; provided that nothing in this act shall be so construed as to prevent regularly licensed physicians or surgeons from extracting teeth."¹

1. Ill. Rev. St. Ch. 91.

It was the opinion of the Attorney General that the proviso permitting physicians or surgeons to extract teeth, by necessary implication excluded them from any intervention except that expressly so excepted. The Dentistry Act makes no other proviso or exception as to physicians and surgeons than as above mentioned. The Medical Act, however, makes provision that nothing *therein* contained shall apply to the laws regulating the practice of dentistry.

The defendant in the instant case called upon the Chicago Medical Society and the Illinois State Medical Society for assistance, which was rendered through their counsel and appropriate committees, although not strictly within powers delegated to them. The matter was regarded of so much moment as to warrant deviation from the letter of the powers of the respective committees. It was anticipated that the condition of the patient treated would be described as *pyorrhea alveolaris* by the prosecution, and on this theory defense was prepared on the proposition that although a manifestation in the jaw was treated, nevertheless power of the physician to treat the diseased antrum and to have the patient under observation and treatment was a necessary incident of the practice of medicine.

The defendant had observed the ethics to the last degree, as we believe, having remitted the patient to a dentist for the removal of artificial dentures, sent her to an extractionist for the extraction of teeth, and sent her to a dentist for the fitting and replacing of artificial dentures after the process of healing was complete. The patient had been under treatment for several years for nervous prostration and gastritis, and was sent to the defendant by a brother physician to diagnose and seek correction of these constitutional conditions by necessary treatments about the head and jaw.

The position was taken for the defense that whether infective conditions in the antrum and jaw should more justly be treated as a local or primary focus, productive of constitutional changes and debility, or whether the constitutional infection and debility should more justly be looked upon as secondarily producing the focus in the jaw, upon the theory of an end organ malnutrition plus infection, is a question which is probably not definitely settled and that any attempts to eliminate the consideration of the

physician from the entire bodily condition, including jaw conditions, would be highly unfortunate.

The present prosecution was viewed as an undue attempt to limit the field of medicine and surgery, and thereby limit jaw treatments to those having no knowledge of the body as a whole, the tendency of which is, as one writer describes it, "to detach one's view from a broader outlook in medicine. The patients who have suffered loss of life by operative intervention of dentists in diabetic pyorrhea are not inconsequential in number."³

After hearing the case as presented on behalf of the state, an informal discussion was had between the Assistant Attorney General, counsel for the defendant, and the court. Among other things, the court stated that he was of opinion that a physician treating a jaw had a right to do anything necessary about a tooth which is incidental to treating the jaw; that if it was a medical case the fact that a tooth was affected and treatment about it involved, it would be within the sphere of the physician. The court said the law was intended to reach those who held themselves out as practicing dentistry, and not cases where a physician is legitimately treating a disease where treatment about a tooth is an incident of the treatment. The court expressed doubts whether the law could be held constitutional if so construed that it would prohibit a doctor from treating a cancer of the jaw. The Attorney General, after calling the complaining witness, Dr. West, before the bar of the court to hear the conclusion of the matter, stated that he did not believe there was sufficient evidence for a conviction, and moved to dismiss his suit. The court thereupon entered a *nolle prosequi* which is the equivalent of a dismissal of the case out of court.

It is hoped that the defeat of this prosecution will cause the Attorney General to see the fallacy of his position, into which he was doubtless led by adherence to the letter of the law rather than its spirit. It is within the possibilities that further arrests may be made in case of physicians operating upon the jaw. A great deal of work has been done by the committees in charge in the preparation of this matter, and invaluable assistance rendered by prominent members of the

2. Journal A. M. A., Feb. 10, 1917, p. 417.

3. Journal A. M. A., Apr. 14, 1917, p. 1085.

profession, whose assistance was asked and most cheerfully and ably rendered. It is deemed proper to give publicity to this matter because of the general interest to the profession, and also with a view to making available the various defenses prepared in this case for the use of other physicians who may not know where to turn if they should be unexpectedly arrested for claimed violations of the dentistry act.

Respectfully submitted,

ROBERT J. FOLONIE, ..
General Counsel.

Public Health

THE NEW STATE DEPARTMENT OF PUBLIC HEALTH

Through the passage of the consolidation bill, which Governor Frank O. Lowden made the definite issue of the early days of his administration, Illinois is now in a position to develop a health department which should compare favorably with that of any of the larger States of the Union. Two years ago, when the Efficiency and Economy Committee of the General Assembly began the consideration of the combination and coordination of existing State departments and bureaus for the purpose of more efficient government, the State Board of Health was asked to submit a plan through which better health administration could be obtained in Illinois. In spite of the fact that the administration of the Medical Practice Act, with the examination and licensure of physicians, other practitioners, midwives and embalmers, had become a great burden to the Board, occupying three-quarters of the time and attention of the members, the officers and the clerical force, it was then believed that it would not only be necessary for the reorganized Board to carry this load, but that it would also be necessary for them to assume the examination and licensure of those engaged in professions and trades more or less associated with public health, such as dentists, pharmacists, nurses, optometrists and barbers.

With an appreciation of the importance of the public health very unusual in laymen in public life, Governor Lowden so arranged the consolidation bill that the State Department of Public Health was relieved of all responsibility for examination and licensure, and was made a health department pure and simple, being one of the nine major divisions of the State Government. The examination and licensure of physicians, together with all other matters of examination and licensure, were transferred to the newly created Department of Registration and Education.

According to Dr. Drake, Director of the Department of Public Health, the foundation of the department will be the system of district health officers established in Illinois two years ago. At the present time the

State is divided into five sanitary districts, each of which has assigned to it a full-time medical health officer. This officer is charged with the responsibility of sanitary and health conditions in his own district; but the entire corps of district officers constitutes a mobile force which may be employed any place in the State in times of emergency.

It is Dr. Drake's hope that at least ten district health officers may be placed in service this year, and that eventually there will be a district health officer to every 100,000 of population in the State outside the city of Chicago.

Behind this group of district officers, who bring the State Health Department into direct contact with every community of the State, there will be, under the new organization, a group of experts, located at Springfield and ready to render specialized service. Each of these experts will be the chief of a bureau.

In charge of the entire organization will be the Director of the Department of Public Health, with the Assistant Director. These two officers are to be appointed by the Governor, but the consolidation law specifies their qualifications and experience.

As an advisory body, the law provides a Board of Advisors on Public Health, made up of men serving without salary, who may offer suggestions to the Director, either without his invitation and who may also offer suggestions affecting the health of the State of the Governor or to the General Assembly. This Board has the right to investigate the operations of the Department of Health, and must be accorded every facility for so doing.

Among the bureaus planned by Dr. Drake are the following:

An Executive Bureau, which consists of the office of the Director and has to do with general administration, the purchasing of supplies, accounting, merit lists of employes and general administration.

A Bureau of Communicable Diseases, under the direction of the State Epidemiologists, which has to do with the prevention and suppression of communicable diseases; education on these subjects, the investigation of epidemics and the distribution of preventive and curative sera, vaccines, etc.

A Bureau of Tuberculosis, charged with anti-tuberculosis education, the making of tuberculosis surveys, the passing upon plans of county tuberculosis sanatoria, the organization of campaigns for county sanatoria, the inspection of hospitals and sanatoria for the treatment of the tuberculous. This bureau will work in close co-operation with the Illinois Tuberculosis Association.

A Bureau of Sanitary Engineering having to do with sanitary surveys, matters concerning water supply and sewage disposal, passing upon plans of building or rebuilding water supplies, sewage and waste disposal.

A Bureau of Child Hygiene charged with educational work in the prevention of undue mortality among children, the establishment of child welfare stations, assisting in baby week and baby show programs, etc.

A Bureau of Surveys and Rural Nursing to engage in rural sanitary work and the establishment of community nursing service. This department will devote attention also to dairies outside municipal corporate limits.

A Bureau of Lodging House and Hotel Inspection charged with the sanitary conditions of hotels and lodging houses and with the enforcement of certain laws affecting them.

A Bureau of Diagnostic Laboratories to operate a diagnostic laboratory at Springfield and branch laboratories in each of the sanitary or health districts of the State.

A Bureau of Vital Statistics for the registration of births and deaths under the new Birth and Death Law. This bureau will also have charge of the statistical work of all of the other bureaus of the department.

A Bureau of Public Health Education in charge of the publication of all circulars and pamphlets of the department and controlling the exhibits, motion pictures and other educational material.

The chiefs of these bureaus will constitute a staff of experts available to the district health officers and the physicians and people of the state, and they will constitute the staff of the health officer schools which will be held in each health or sanitary district.

The new law creating the State Department of Public Health will go into effect on July 1.

THE ILLINOIS PUBLIC HEALTH AND WELFARE ASSOCIATION

The first annual meeting of the Illinois Public Health and Welfare Association held in Springfield on April 12 and 13, is said to have been one of the most successful public health meetings ever held in the middle west. The Association is the coming together of all of the special organizations of the State interested in any phase of public health or welfare work and includes in its membership both the governmental and extra-governmental organizations. The Association, while entirely independent, is in close affiliation with the State Board of Health.

A clergyman living near Leyden was the father of thirteen children. The eldest, born December 31, 1668, was Herman Boerhaave, accounted by many the most famous physician not only of the 18th, but probably of any century. He died of gout in 1738.

He was an indefatigable teacher, sometimes lecturing five hours a day to his students at Leyden. He was the first to give separate lectures on ophthalmology (the science of diseases of the eye) and to use a magnifying glass in the examination of the eye. He combined, with a desire to study disease at the bedside, a freedom from theoretical and philosophical influence which led him to use the most modern diagnostic apparatus which he could secure. He was so famous that a Chinese official once sent him a letter addressed simply: "To the most famous physician in Europe." This maxim was "Simplicity is the seal of truth."

The modern diagnosis of disease aims to employ every method which will reveal the exact mental and physical condition of the patient. Psycho-analysis will reveal the depths of the patient's mind almost as clearly as the x-ray shows the broken bone hidden beneath the body tissues. The pressure of the blood against the vessel walls may be accurately measured and appropriate means taken to ward off an apoplectic attack. The bodily excretions may be analyzed and the efficiency of the excretory organs determined. Special apparatus permits the examination of the eye, the ear, the nose, throat, bronchi, and the interior of various other parts of the body. Nothing is taken for granted; the blood is examined; the activity of the stomach is estimated; the validity of the nervous system is looked into. The modern physician finds the disease before he treats it.

Accurate diagnosis is of importance to the public health because an early and correct knowledge of the presence of a disease affords opportunity to prevent its spread. The case of tuberculosis, which is found early, has an infinitely greater chance of recovery than the one which is found late. Boerhaave recognized these facts in a general way and applied them; in fact, according to Rohlf, he was the first who made a chemical examination of some of the bodily excretions.

The Association of Military Surgeons of the United States announces the results in the Henry S. Wellcome Prize Competition. Captain Mahlon Ashford, M. C., U. S. A., who wrote on the subject: "The most practical plan for the organization, training and utilization of the medical officers of the Medical Reserve Corps of the United States Army and Navy, and of the Medical officers of the Officers' Reserve Corps of the United States Army, in peace and war," was awarded a gold medal and three hundred dollars. First Lieut. Henry C. Coe, M. R. C., of New York City, who received the honorable mention for this prize, was awarded a life membership in the Association. A silver medal and two hundred dollars was awarded to Assistant Surgeon General W. C. Rucker, U. S. P. H. S., whose essay was entitled: "The influence of the European War on the transmission of the infections of disease, with special reference to its effect upon disease conditions of the United States." Passed Assistant Surgeon J. H. Hurley, U. S. P. H. S., received honorable mention for this prize and a life membership in the Association. These prizes, which were given by Mr. Henry S. Wellcome, an American living in London, are annually competed for by officers of the Army, Navy, Public Health Service, the National Guard and the Officers' Reserve Corps of both the Army and the Navy. The essays of the successful contestants will be published at an early date in *The Military Surgeon*.

A reliable disinfectant which may be made for fifty cents per gallon has been devised by the U. S. Public Health Service?

ILLINOIS STATE MEDICAL SOCIETY

SECTION OFFICERS AND COMMITTEES

SECTION ONE
 Frederick Tice, Chairman.....Chicago
 C. Martin Wood, Secretary.....Decatur

SECTION TWO
 James H. Finch, Chairman.....Champaign
 John S. Nagel, Secretary.....Chicago

SECRETARY'S CONFERENCE
 H. B. Henkel, Chairman.....Springfield

Osstella Blakely, Secretary.....Fairfield

SECTION ON PUBLIC HEALTH AND HYGIENE
 G. F. Ruediger, Chairman.....La Salle
 Grace H. Campbell.....Chicago

SECTION ON EYE, EAR, NOSE AND THROAT
 R. J. Tivnen, Chairman.....Chicago
 J. Sheldon Clark, Secretary.....Freeport

COUNTY SOCIETIES

This list is corrected in accordance with the best information obtainable at the date of going to press. County Secretaries are requested to notify The Journal of any changes or errors.

Adams County
 J. L. Aleshire, Pres.....Plainville
 Elizabeth B. Ball, Secy.....Quincy

Alexander County
 J. W. Dunn, Pres.....Cairo
 R. E. Barrows, Secy-Treas.....Cairo

Bond County
 W. T. Easley, Pres.....Greenville
 J. C. Wilson, Secy.....Greenville

Boone County
 Geo. Markley, Pres.....Poplar Grove
 H. E. Delavergne, Secy.....Belvidere

Brown County
 D. R. Peters, Pres.....Timewell
 E. C. Allworth, Secy-Treas.....Mt. Sterling

Bureau County
 C. C. Barrett, Pres.....Princeton
 M. A. Nix, Secy.....Princeton

Calhoun County
 W. A. Skeel, Pres.....Kampsville
 J. H. Pelsker, Secy.....Hardin

Carroll County
 W. W. McGrath, Pres.....Savanna
 R. B. Rice, Secy-Treas.....Mt. Carroll

Cass County
 C. E. Soule, Pres.....Beardstown
 W. R. Blackburn, Secy.....Virginia

Champaign County
 J. H. Finch, Pres.....Champaign
 John C. Dillenbach, Secy.....Champaign

Christian County
 R. C. Danford, Pres.....Pana
 S. B. Herdman, Secy.....Taylorville

Clark County
 S. W. Weir, Pres.....West Union
 S. C. Bradley, Secy.....Marshall

Clay County
 C. E. Duncan, Pres.....Flora
 R. D. Finch, Secy.....Flora

Clinton County
 J. A. Bauer, Pres.....Germantown
 J. Q. Roane, Secy.....Carlyle

Coles-Cumberland County
 Wm. Smith, Pres.....Toledo
 R. H. Craig, Secy-Treas.....Charleston

Cook County
 A. Augustus O'Neill, Pres.....Chicago
 J. V. Fowler, Secy.....Chicago

Crawford County
 A. G. Brooks, Pres.....Stoy
 C. E. Price, Secy.....Robinson

DeKalb County
 Paul E. N. Greeley, Pres.....Waterman
 J. B. Hagey, Secy.....DePalb

De Witt County
 J. C. Myers, Pres.....Clinton
 Charles W. Carter, Secy.....Clinton

Douglas County
 I. N. C. McKinney, Pres.....Murdock
 Walter C. Blaine, Secy.....Tuscola

Du Page County
 (Affiliated with Cook County)

Edgar County
 Wm. A. Buchanan, Pres.....Paris
 George H. Hunt, Secy.....Paris

Edwards County
 C. S. Brannen, Pres.....Albion
 G. H. Pormenter, Secy.....Browns

Effingham County
 Frank W. Goodell, Pres.....Effingham
 F. Buckmaster, Secy.....Effingham

Fayette County
 A. E. Greer, Pres.....Brownstown
 Mark Greer, Secy.....Vandalia

Franklin County
 Wm. H. Smith, Pres.....Benton
 Edgar Austin, Secy.....Benton

Fulton County
 J. C. Simmons, Pres.....Canton
 B. E. Ray, Secy-Treas.....Cuba

Gallatin County
 J. W. Bowling, Pres.....Shawneetown
 A. B. Capel, Secy.....Shawneetown

Greene County
 O. L. Edwards, Pres.....Roodhouse
 L. O. Frech, Secy-Treas.....White Hall

Grundy County
 Roscoe Whitman, Pres.....Morris
 F. C. Bowker, Secy.....Morris

Hamilton County
 E. S. Hall, Pres.....McLeansboro
 W. L. Cottingham, Secy.....Paxton

Hancock County
 Blair Kelley, Pres.....Ferris
 S. M. Parr, Secy.....Carthage

Hardin County
 W. J. J. Paris, Pres.....Rosiclare
 F. A. Jones, Secy.....Rosiclare

Henderson County
 W. J. Emerson, Pres.....Carman
 J. P. Riggs, Secy.....Media

Henry County
 Chas. F. Young, Pres.....Geneseo
 P. J. McDermott, Secy.....Kewanee

Iroquois-Ford District
 O. O. Hall, Pres.....Milford
 W. L. Cottingham, Secy.....Paxton

Jackson County
 W. A. Brandon, Pres.....Carbondale
 H. G. Horstman, Secy.....Murphysboro

Jasper County
 John Hamilton, Pres.....Bogota
 James P. Prestley, Secy-Treas.....Newton

Jefferson County
 E. E. Edmondson, Pres.....Mt. Vernon
 Andy Hall, Secy.....Mt. Vernon

Jersey County
 A. A. Barnett, Pres.....Jerseyville
 H. R. Bohannon, Secy.....Jerseyville

Jo Daviess County
 A. T. Nadig, Pres.....Elizabeth
 T. J. Stafford, Secy.....Stockton

Johnson County
 C. D. Nobles, Pres.....Buncombe
 H. W. Walker, Secy.....Grantsburg

Kane County
 A. E. Diller, Pres.....Aurora
 L. J. Hughes, Secy-Treas.....Elgin

Kankakee County
 C. W. Geiger, Pres.....Kankakee
 E. S. Hamilton, Secy-Treas.....Kankakee

Kendall County
 R. A. Schaefer, Pres.....Plano
 Robt. McClelland, Secy.....Yorkville

Knox County
 A. C. Keener, Pres.....Altona
 G. S. Bower, Secy.....Galesburg

Lake County
 John P. O'Neil, Pres.....Highland Park
 C. S. Ambrose, Secy-Treas.....Waukegan

La Salle County
 R. C. Fullenwelder, Pres.....La Salle
 E. E. Perlisho, Secy.....Streator

Lawrence County
 E. M. Cooley, Pres.....Lawrenceville
 F. F. Petty, Secy.....Lawrenceville

Lee County
 Chas. C. Kost, Pres.....Dixon
 C. G. Poole, Secy.....Compton

Livingston County
 A. B. Richardson, Pres.....Emington
 John Ross, Secy.....Pontiac

Logan County
 W. W. Coleman, Pres.....Lincoln
 H. S. Oyler, Secy.....Lincoln

McDonough County
 E. R. Miner, Pres.....Macomb
 Geo. S. Duntley, Secy.....Bushnell

McHenry County
 N. L. Seelye, Pres.....Harvard
 Hyde West, Secy.....Woodstock

McLean County
 Frank C. Fisher, Pres.....Bloomington
 Thos. D. Cantrell, Secy.....Bloomington

Macon County
 F. J. Mittan, Pres.....Decatur
 C. E. Hildreth, Secy.....Decatur

Macoupin County
 G. E. Hill, Pres.....Girard
 T. D. Doan, Secy.....Scottville

Madison County
 J. Barnard Hastings.....Alton
 E. W. Flegenbaum, Secy.....Edwardsville

Marion County
 W. W. Murfin, Pres.....Patoka
 J. M. Gambil, Secy.....Centralia

Marshall-Putnam County
 R. R. Eddington, Pres.....Lacon
 R. L. Eddington, Secy.....Lacon

Mason County
 H. O. Rogier, Pres.....Mason City
 W. R. Grant, Secy.....Easton

Massac County
 J. A. Orr, Pres.....Metropolis
 J. A. Helm, Secy.....Metropolis

Menard County
 H. E. Wilkins, Pres.....Petersburg
 H. P. Moulton, Secy.....Petersburg

Mercer County
 F. J. Rathbun, Pres.....New Windsor
 A. N. Mackey, Secy.....Aledo

Monroe County
 S. Kohlenbach, Pres.....Columbia
 L. Adelsberger, Secy.....Waterloo

Montgomery County
 C. H. Lockhart, Pres.....Witt
 G. W. Cox, Secy.....Litchfield

Morgan County
 G. R. Bradley, Pres.....Jacksonville
 W. L. Frank, Secy.....Jacksonville

Moultrie County
 C. W. Taylor, Pres.....Bethany
 O. M. Williamson, Secy.....Sullivan

Ogle County
 L. M. Griffin, Pres.....Polo
 J. T. Kretsinger, Secy.....Leaf River

Peoria City Medical Society
 O. B. Will, Pres.....Peoria
 Hugh Cooper, Secy-Treas.....Peoria

Perry County
 J. S. Templeton, Pres.....Pickneville
 T. B. Kelley, Secy.....Du Quoin

Piatt County
 W. G. McPharson, Pres.....Bement
 W. G. McDeed, Secy.....Monticello

Pike County
 R. P. Wells, Pres.....Pleasant Hill
 W. E. Shastid, Secy.....Pittsfield

Pope County
 J. A. Fisher, Pres.....Brownfield
 L. S. Barger, Secy.....Golconda

Pulaski County
 J. F. Hagan, Pres.....Mound City
 W. R. Wesenberg, Secy.....Mound City

Randolph County
 Wm. R. McKenzie, Pres.....Chester
 John P. Grimes, Secy-Treas.....Menard

Richland County
 A. T. Telford, Pres.....Olney
 E. H. Horner, Secy.....Olney

Rock Island County
 H. A. Beam.....Moline
 H. G. Love, Secy.....East Moline

St. Clair County
 J. H. Fulgham, Pres.....E. St. Louis
 A. E. Hansing, Secy.....Belleville

Saline County
 M. D. Empson, Pres.....Galatia
 R. B. Nyberg, Secy.....Harrisburg

Sangamon County
 Arthur E. Prince, Pres.....Springfield
 H. B. Henkel, Secy.....Springfield

Schuyler County
 A. W. Ball, Pres.....Rushville
 J. C. Steiner, Secy.....Rushville

Scott County
 J. W. Eckman, Pres.....Winchester
 H. H. Fletcher, Secy.....Winchester

Shelby County
 F. A. Martin, Pres.....Tower Hill
 Frank P. Auld, Secy.....Shelbyville

Stark County
 James R. Holgate, Pres.....Wyoming
 Clyde Berfield, Secy.....Toulon

Stephenson County
 N. C. Phillips, Pres.....Freeport
 D. G. Smith, Secy.....Freeport

Tazewell County
 H. L. Yoder.....Morton
 F. C. Gale, Secy.....Pekin

Union County
 S. G. Martin, Pres.....Anna
 E. V. Hale, Secy.....Anna

Vermillion County
 J. B. Morton, Pres.....Ridge Farm
 Solomon Jones, Secy.....Danville

Wabash County
 P. G. Manley, Pres.....Mt. Carmel
 A. A. Aukenbrandt, Secy.....Mt. Carmel

Warren County
 Philo B. Conant, Pres.....Roseville
 H. M. Camp, Secy.....Monmouth

Washington County
 R. Jack, Pres.....Okawville
 H. Schmidt, Secy.....Addieville

Wayne County
 T. J. Hilliard, Pres.....Fairfield
 Ostellia F. Blakely, Secy.....Fairfield

White County
 C. B. Staley, Pres.....Enfield
 John Niess, Secy.....Carmi

Whiteside County
 W. H. Durkee, Pres.....Fulton
 H. N. Schmalzing, Secy.....Fulton

Will County
 Marlon K. Bowles, Pres.....Joliet
 L. J. Lennon, Secy.....Joliet

Williamson County
 J. G. Parmley, Pres.....Marion
 H. A. Felts, Secy.....Marion

Winnebago County
 Wm. E. Park, Pres.....Rockford
 C. M. Ranseen, Secy-Treas.....Rockford

Woodford County
 W. C. Cotton, Pres.....Benson
 H. N. Barth, Secy.....Metamora

Auto Sparks and Kicks

STORAGE BATTERIES.

Most battery troubles come from neglect or want of knowledge of a few essential facts. These essentials are limited to number.

Do not subject battery to duty for which it is not intended.

Keep battery properly charged.

Keep battery cells filled with pure water.

If operating with a generator, see that it is right and not over-charging or under-charging the battery.

KEEP BATTERY PROPERLY CHARGED.

If not in service, every storage battery should be charged for a few hours every 30 days. Never allow it to stand without charging to exceed 60 days.

SPECIFIC GRAVITY TEST.

The specific gravity of a battery when fully charged is between 1.275 and 1.300.

Specific gravity is tested by a hydrometer syringe, having a glass tube with a float which accurately indicates the amount of acid in solution. If specific gravity is shown by the reading of the hydrometer to be below 1.250, the battery should be recharged.

When battery is fully discharged, the specific gravity is about 1.150.

Note—Never test battery immediately after filling with water, as this will not give the correct reading.

If the cell always regularly requires more water than the others, a leaky jar is indicated.

If there is no leak and if the gravity is or becomes 50 or 75 points below that in the other cells, a partial short-circuit or other trouble within the cell is indicated.

Keep battery and interior of battery compartment wiped clean and dry.

KEEP BATTERY CELLS FILLED WITH WATER.

Every liquid storage battery should be filled with pure water. This should be done once a week in hot weather and every two weeks in winter. Failure to do this may result in sulphating and ultimate ruin of the plates. Water for this purpose should be distilled or filtered rain water from a wooden roof.

Fill every cell so as to cover the plates; do not flood. Test for gravity before adding water.

If by accident the liquid has been spilt from the battery, fill with solution made of one part of chemically pure sulphuric acid to ten parts of pure water.

Caution—Never take a naked flame near battery while charging or directly after being charged. The gas coming from the battery is liable to ignite and cause trouble.

Any liquid battery placed in storage should be kept fully charged to prevent freezing and breaking of jars.

Hard acid batteries will not freeze.

CHARGING HARD ACID BATTERIES.

The hard acid battery cannot be tested by the hydrometer, since, as its name implies, there is no free solution to test. Therefore, its condition can be known only by its service. When used for either ignition or direct lighting as the battery approaches the point of exhaustion it should be charged the same as the liquid battery except that at the time of each recharging a limited quantity of solution must be added to each cell, just enough to cover the plates. This solution should be on part C. P. sulphuric acid to ten parts of pure water.

This solution is absorbed by the hard acid, leaving the battery non-freezing and non-spilling.

AUTO SCIENCE MADE SIMPLE.

Here's a little science made over to fit the unscientific. A bearing without lubrication of any nature develops a maximum amount of friction. The ideal performance would be to reduce that maximum to nothing. Then your car would run like a streak of greased lightning and not half try. But you can't do it. The best you can do is to pare it down by using oils or greases. Naturally, some oils and greases are better than others. Certain frictional conditions require a different cure, a different kind or degree of lubrication.

With a graphite lubricant you can reduce friction to almost nothing.

Lubrication of both motor and chassis is always the one important item in the life of a car. Graphite added to the lubricant used makes lubrication much more perfect. The graphite oils and greases are far superior to the plain greases for almost any bearing.

Society Proceedings

COOK COUNTY CHICAGO MEDICAL SOCIETY

ABSTRACT

Scientific Meeting, March 21, 1917

The President, DR. A. AUGUSTUS O'NEILL, in the Chair.

Dr. Frederick G. Dyas read a paper on "Local Anesthesia." He stated that various drugs and freezing sprays have been used and have played an important part in the production of local anesthesia, but it remained for novocain to fill the long-felt want. This substance is only about one-seventh as toxic, and yet possesses to a remarkable degree its property of producing analgesia, and used in sufficient dosage to produce local anesthesia is practically without toxic effect. In the summer of 1916 another substance was introduced experimentally to take the place of novocain, which was almost unprocurable. This agent is known as apothesis. It is used in the same strength and dosage as novocain; its toxicity is about the same, and it has the same resistance to boiling. The speaker said he had performed about 85 major operations with the aid of apothesis and he considers it in no way inferior to novocain as a local anesthetic. For a long time local anesthesia was almost wholly confined to operations upon the eye, nose and throat, and had it not been for the introduction of the less toxic novocain and adrenalin, which made possible the development of the technic of infiltration anesthesia and nerve block, the method would in time have been abandoned. The author drew the following conclusions: 1. The patient's life is not endangered by dosage sufficient to induce local anesthesia. 2. The general comfort of the patient after operation is much improved because of lessened trauma and decreased gas pains. 3. Convalescence is not complicated by the anesthetic and is thereby shortened. 4. Ambulatory patients may be immediately discharged after operation. 5. An anesthetist is unnecessary, but a "Moral Anesthetist" is desirable. 6. The use of adrenalin renders the field less bloody, prolongs anesthesia, delays absorption, and thereby lessens toxicity. 7. Nerve-block as a lasting anesthesia for chronic pain should find as wide an application as its use for operative procedure.

Dr. Weller Van Hook read a paper on "The Anatomical Relations of the Goitrous Thyroid." The author pointed out that the entire thyroid may enlarge, or only a part or parts may increase in size. The force which brings about increase in size is very great and acts from within the gland itself. The peculiar, even bizarre, effects which we see clinically are to be explained by keeping in mind the facts already mentioned and the additional fact that the trachea and esophagus, the neighboring bones, the muscles and fascia, the arteries and the nerves offer lines and planes of resistance to growth. It is only by a careful study of the planes in which free expansion

may occur and the forces that drive the thyroid or its parts against them that we can comprehend at a glance the meaning of the multiplicitous forms of goiter which we meet with in practice.

In a paper on "Radium in Gynecology" Dr. Henry Schmitz was of the opinion that diseases of the female pelvic organs exhibiting a proliferation of tissue elements or the formation of a new growth can be beneficially treated with actinotherapy. He stated that he had subjected to radium treatment 22 hemorrhagic and 6 inflammatory metropathies, 13 uterine myomata, and myomatosis, 94 primary and recurrent inoperable uterine, 17 rectal and 14 genito-urinary carcinomata—a total of 166 cases. He considered it unfair to compare the results of radium therapy in the treatment of carcinoma with those obtained by surgical methods, as surgery is employed in strictly localized cancers, while radium is used in advanced cases, but the author stated that radium is the best palliative remedial agent in this disease, although it could not be called curative until observations have extended over a period of at least five years. Radium therapy has not yet been completely developed, and that it would require many years of careful observation and close study by the clinician and physicist to perfect the technic. He believed that the therapeutic application of radium is an art which can be acquired by the most painstaking observation and close application, while in the hands of the uninitiated radium is directly dangerous. The rays are wonderfully controllable if one knows how to use them, and terribly destructive if not held within bounds. It is the best palliative in inoperable cancers, properly selected, where it will cause a healing in about 65 per cent of the cases and a subjective improvement in an additional 15 per cent.

Scientific Meeting, March 28, 1917.

Dr. John L. Whitman (House of Correction) spoke on "The Influence of Alcoholism in the Production of the Criminal, Pauper and Insane." His personal observation of alcoholics extends over a period of 18 years in an official capacity at the County Jail as well as over 10 years at the House of Correction. During that time they had become impressed with the idea that it was of great importance that the physical condition of the patients should be carefully studied. Public sentiment was not very strong in favor of giving to the inmates of institutions much more consideration than was due them on account of the crime committed, but at the House of Correction they found Dr. Scelesh in accord with their ideas. At least 30 per cent are in advanced stages of alcoholism, and the chances of their being rehabilitated are not very good, yet there is a possibility of some individual cases being made better citizens after scientific treatment.

Dr. Charles E. Scelesh read a paper on "Alcoholism as Observed at the Scelesh Hospital of the House of Correction, With Autopsy Findings." During the past 17 years 40,000 cases of chronic alcoholism have passed through the institution for treatment. This

did not include the acute alcoholic intoxication occurring in cases that are not suffering from chronic alcoholism. Dr. Scelesh was of the opinion that no matter what measures are taken by the legislators, the manufacture and sale of these poisons to a laity so generally ignorant of the harm they may produce, and the real anatomic changes is certain to be restricted here as elsewhere in the near future. He said he could not estimate the financial cost of the chronic alcoholic to society, but if the government absolutely prohibited the manufacture of distilled liquors he believed the work of the police department and municipal courts would be cut in half, and that the population of the police stations, workhouses, prisons and reformatories would be reduced 50 per cent, the asylum 25 per cent, and the poverty and misery of the world 75 per cent.

Judge Thomas F. Scully discussed the subject from the standpoint of the County Judge. He said he did not know much about alcohol, but had seen some of the results of the excessive use of alcohol, as it is his duty to try insane cases on an average of 100 a week, the greater percentage of which were alcoholic. He believed that if the doctors would interest themselves just a little in the youth of the city, the boys and girls who drink alcohol to excess because they don't know the effect that drink has upon them, they could do a great amount of good; that if the physicians of the city or county or state would hold meetings in the schools and advise the young men and girls before they reach the age of manhood and womanhood of the effects of the excessive use of alcohol, they might be able to save a large per cent of those who finally spend their days in the House of Correction or in one of the state insane asylums.

Dr. Bernard Fantus spoke on the "Pharmacology and Therapeutics of Alcohol." He stated that the most hotly debated question had been the food value of alcohol, but it must be admitted that less than 10 per cent of alcohol ingested is eliminated; often only 2 per cent, so that 90 to 98 per cent must be oxidized in the system, and so has a high caloric value, a dram of whiskey having the same caloric value as a dram of sugar, four calories. It is also well established that in conditions of starvation alcohol is capable of serving the system in place of fat or carbohydrates. When food is taken in and alcohol is taken in addition, the alcohol renders some of the food superfluous, so there is a tendency to obesity, the development of gout, etc., and this action of alcohol renders its food value not only undesirable but strictly harmful. So while alcohol is a food, it is a toxic food. He believed the best use of alcohol to be external, as it is an excellent disinfectant and is often useful in the treatment of infections of various kinds.

Dr. H. I. Davis, in discussing the general aspects, said he thought the men who are preaching prohibition are not preaching it from the right point of view; they are telling us that if the manufacture of alcohol is stopped men will not drink, but he thought this was not true. We do not live properly; we are

spending our nervous force and in trying to recuperate men turn to alcohol.

Judge William N. Gemmill discussed the subject from the standpoint of the Municipal Court, saying that the purpose of the laws in this land is that every boy and girl born on American soil shall have an equal opportunity to secure the fruits of life; that the powerful shall not crush the weak and helpless. Our schools are maintained that the boys and girls may be prepared to go out into the world with a fair opportunity to win their way in the battle of life; and it should be our task to give the children of these drunken parents some sort of a chance.

Scientific Meeting, April 4, 1917.

Dr. Jefferson D. Griffith, Kansas City, Missouri, read a paper on "The Responsibility of the Surgeon and the Frequent Cause of Death Immediately Following Operative Work." The changes, he said, brought about by the general acceptance of the first antiseptic and the aseptic principles of surgical cleanliness cannot be realized by the younger generation of surgeons whose medical education was finished after 1885. Prevention has become the watchword of the medical practice, and through the successful employment of the preventive methods of the present day surgery has become a conservative branch of human art. The elimination of accidental disturbances of repair caused by wound infection has decreased the percentage of mortality following operations to a most remarkable extent. The dread of undertaking and of submitting to surgical operations is greatly diminished, hence allowing earlier surgical interference to the possible advantage of both patient and surgeon.

Dr. Jacob Frank discussed the subject from the standpoint of the army surgeon. The author feels sure that if this country should become involved in a conflict with a foe it would be the civil surgeon who would be called upon to do the surgical work, as the army has not enough surgeons.

Dr. John Ridlon, in speaking from the standpoint of the orthopedic surgeon, considered the responsibilities before the operation just the same as those of the general surgeon, but stated that there were very few deaths in the work of the orthopedic surgeon unless he is a careless or experimental surgeon.

Dr. Charles H. Parkes, in speaking from the standpoint of the general surgeon, said the future should hold some intelligent, honest, comprehensive reform for the elevation of the ethics of surgery. The law of the survival of the fittest will not solve the problem.

Dr. Charles S. Bacon, in speaking of the subject from the standpoint of the obstetrical surgeon, stated that every obstetrical case is a surgical case to some extent. In every case there is a wound which is liable to infection and hemorrhage—liable to any action that any wound is liable to, and most cases are liable to the dangers of anesthetics as well, so the responsibility of the obstetrical surgeon is greater than that of the general surgeon.

Dr. Channing W. Barrett, discussing the subject

from the standpoint of the gynecological surgeon, said that while a general surgeon may take out a gall-bladder or an appendix, the gynecologist might have to do that in combination with various things. From the standpoint of responsibility he had not often been able to "put himself in the patient's shoes" and had not always been able to "consider what he would do if he were in the same condition," but he thought it was always well to take into consideration what was the very best thing to do for each patient.

J. V. FOWLER, M. D.,
Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY

Meeting of Oct. 16, 1916, Continued.

SYMBLEPHARON.

Dr. John A. Pratt, Aurora, reported a case of complete symblepharon. The eye had been burned by hot metal and the doctor in charge had performed evisceration. The particular feature about the operation for symblepharon that was different from anything he had ever seen was the making of a double row of holes in the large tin plate prosthesis used, and the suturing of the Thiersch graft to the plate, which sutures were cut after six days. The entire graft seemed to have taken, but had contracted to one-third of its original size. His idea now is, to build the superior and inferior fornix with the foreskin of a small child, instead of the use of Thiersch grafts.

He would like to know if any member had ever used foreskin in the place of Thiersch graft, and if so, what the result had been.

He intended to do a Week's operation. While the eye seemed to be doing well, more operations are necessary.

Dr. Suker stated that foreskin, if used as a graft, acted very nicely when transplanted. There was this disadvantage, however, that it contracted much more than skin taken elsewhere. A graft of foreskin would take readily, but in the end result was not quite as good as it might be.

CALCAREOUS DEPOSITS IN THE CORNEA.

Dr. Harry S. Gradle reported the case of a man who came to see him a week ago with a history of having had repeated ulcerations of the cornea, evidently of neuropathic origin, for the past seven years. He had had twelve ulcerations during this time. The last attack occurred last September. The Wassermann reaction was negative; tuberculin reaction was negative.

An interesting feature is the calcareous deposits particularly in the right eye. There is one deposit over the pupillary area, the result of the last attack in December and January. Patient had tried practically everything without avail. He had gone through routine procedures, such as massage and heat, without relief.

It was suggested by an internist that in hyperparathyroidism there is a deficiency of calcium in circulat-

ing plasma. The patient had been fed large quantities of parathyroid extract, trying to produce a deficiency of calcium, which will lead to some absorption of the calcium in the cornea. If this is of no avail, the only thing is to resort to some form of operation.

PAUL GUILFORD, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held December 18, 1916, with the president, Dr. William E. Gamble, in the chair.

SINUS DISEASE AS AN ETIOLOGICAL FACTOR IN IRITIS

Dr. E. E. Irons and Dr. E. V. L. Brown contributed a joint paper on this subject. In 100 cases of iritis studied etiologically for luetic, gonococcal, tuberculous, dental, tonsillar, sinus and other infections, the authors found abnormalities of sinuses suggestive of infection in 18 cases, but considered sinus infection the etiologic factor only in the three cases given below. In the other 15 cases the etiologic factor was considered to be luetic in 6, gonococcal 1, dental 1, tonsillar 1, and so combined that no one factor could be considered the certain factor in 6.

Case 1.—Housewife, aged 45. Left acute iridocyclitis; duration 3 weeks; relieved by atropin, etc. Just previous to the eye trouble the patient had had a cold, with nasal discharge. Frontal sinusitis was found clinically and by x-ray. Slight tonsillar infection was noted in one tonsil. No clinical or laboratory evidence of dental, luetic, gonococcal or tuberculous infection could be found. (1, 3 and 8 mg. O. T.) Tuberculin used under careful control and after due consideration of the general condition of the patient. Treatment of the sinus was refused.

Case 2.—Printer, aged 34. Bilateral chronic iridocyclitis, duration off and on since 9 years of age. Pansinusitis, but no other evidence of active tonsillar, dental, luetic, gonococcal or tuberculous infection could be found on careful clinical and laboratory study (7 mg. O. T.). Three weeks' atropin treatment had no effect upon the pupil or the "rose-flush." Operative sinus treatment was refused.

Case 3.—Male, aged 20. Left chronic serous iridocyclitis began in February, 1913. The right antrum had been drained 7 months before. After the tonsils were removed in August, 1913, the eye condition improved, but during 1914 there were repeated exacerbations, with occasional periods of fever, sub and intracutaneous, and intramuscular tender nodules, but no change in the slight presystolic apical heart murmur, during two years of observation. Blood cultures during three of exacerbations remained sterile. The teeth were normal and there was no clinical or laboratory evidence of luetic, gonococcal, or tuberculous infection (1, 3, 7 mg. O. T.). A complete reexamination during a recurrence in August, 1915, revealed an active antrum infection. The antrum was drained and cultures of the pus showed a slightly hemolytic streptococcus. The eye improved. A suspension of 100 million killed streptococci was injected subcutaneously as a test of sensitiveness to this organism. Forty-eight hours later right ciliary infection became more marked and the clear left eye became red. This reaction lasted 40 hours and then subsided without local treatment. Four days later the procedure was repeated with a smaller dose and after 24 hours the same reaction appeared in the right eye, with some pain, but no redness in the left, and subsided within 72 hours. Feb. 2, 1916, the patient reported the eyes improved, and the rhinologist stated that the sinuses were clear of infection. In this patient the evidence seemed fairly clear that the source of the recurrences of the iridocyclitis was a persistent infection of the sinuses.

DISCUSSION

DR. ALEXANDER S. ROCHESTER said that the cases reported by the essayists reminded him of a case which he treated some months ago, particularly when the essayists spoke of the possibility of not finding a present sinus trouble. He saw the patient in his third attack of iritis within a period of two years. In each attack the patient was taken care of by a competent oculist, a different oculist each time. Each time he had been referred by the oculist to a rhinologist, but examination of the nose had not disclosed any sinus trouble. Each time the patient had had a "cold" in the nose at the time the iritis came on. Each attack lasted for several months, and with the usual treatment of atropin, hot applications and sodium salicylate, the eye had gradually cleared up, the patient being told he had had rheumatic iritis. When patient consulted the speaker he had an iritis which had begun three or four days before. In examining the nose he used the suction apparatus which Brawley had spoken of and which he thought was of great value. The first day he was not able to find anything pathological in the nose at all. He used atropin and hot applications, and the next day the patient's eye was worse. On examining the nose again and putting the patient on the suction apparatus for a while, at the end of about twenty minutes some pus escaped from the anterior ethmoidal region. Within several hours after this, the eye was very much better and in two or three days quieted down. He kept up the use of the suction apparatus and the eye became completely quiet, and later on he opened up the ethmoid so as to establish drainage. He thought the suction apparatus was of great value in the diagnosis of these cases, as well as of great aid in their treatment where it was necessary to use conservative methods.

DR. HARRY S. GRADLE asked whether Dr. Brown considered the iritis in sinus disease an infection or a toxemia.

DR. BROWN said he considered it to be an infection transferred by the circulating blood.

Blood cultures had been made in the last case, but were all negative.

DR. MICHAEL GOLDENBURG mentioned a condition in point where it affected the optic nerve. The wife of a dentist developed a unilateral neuro-retinitis, which was very marked. Every form of examination had been made and nothing could be found that might account for the condition. The teeth were x-rayed, a Wassermann examination was made, urinalysis and blood count made, and a radiograph of the skull was made in order to show up the ethmoidal cells. In the ethmoid region on that side, in one spot was seen a small area of possible infection. The matter was placed before the husband and he was told that the speaker did not feel that that was the cause of it, but that was the only thing that could possibly account for the condition. It was decided to open the ethmoids, which was done. No pus was found, but in the substance removed, after floating in water, there was a little membrane which took the form of a bag, that was possibly a cyst. The eye began to recover in a comparatively short time. Patient was nevertheless placed on small doses of mercury and iodid of potassium. The eye recovered with almost normal vision. In the course of a month or so afterwards she developed an acute infection of the antrum on that side, which was easily diagnosed, by transillumination and irrigation. At the same time another attack of neuro-retinitis which was just as marked as the preceding one developed. Vision went down to 20/200. The antrum was drained, and the patient made a perfect recovery. She has not had a relapse for a year and a half or more.

DR. FRANK BRAWLEY, in referring to the point raised by Dr. Gradle as to whether these conditions are due to a localized infection or to toxemia, stated that in his experience he had gained the impression that a toxemia is really the cause. He had had a number of cases, some of which he had reported, where rapid improvement resulted from the evacuation of the sinus or following the use of the suction pump and drainage, so that he could scarcely see how one could explain it on any other ground than that of a toxemia. The case cited by Dr. Rochester would tend to support that theory, and particularly as Dr. Brown and Dr. Irons had found absence of organisms in the blood with the most careful technic.

DR. HARRY S. GRADLE did not think that the conditions of

optic neuritis and uveitis due to accessory sinus trouble were at all identical. He agreed with Dr. Brawley that sinus disease was probably due to toxemia, but optic neuritis, due to accessory sinus disease, was an extension of the process to the soft tissues from the accessory sinus through the orbit, involving the intracanalicular portion of the nerve. The same therapeutic measures would tend to relieve the two conditions.

DR. J. B. LORING stated that in determining the etiological factor we might think of several things to assist us, either there is an increased infection occurring or a diminished local resistance. He recalled a case he had quite a number of years ago at the time of the celebrated "Boodle trial" in Chicago. An attorney concerned in the defense of that suit was doing an immense amount of work and had infection of the antrum. He was also the subject of lues. It was thought that his case of iridocyclitis was due to syphilis, but as thorough treatment as could be carried out at that time failed to give any appreciable relief. The case persisted. After the antrum was drained effectively the trouble rapidly subsided. This man was doing an excessive amount of work at that time, and the iritis came on.

Another case, seen two or more years ago, was that of an artist decorator in the city, who was also doing an excessive amount of work at that particular time. He had noticed no change so far as the antral disease was concerned, having known that it was present for some time, and it having been recommended that the antrum should be drained. With his hard work he was practically prostrated. The iridocyclitis followed. Prompt relief was afforded after drainage of the antrum and keeping it up. Perhaps a close study of these cases might reveal points of increased focal infection. Take arthritis. There is usually either an exacerbation of the focal lesion or a diminished resistance at the point of onset, as seen in trauma, not that trauma has anything further to do with it than the production of a local diminished resistance. In the same way in a joint infection, the infection not involving the synovial secretion, but being external to the joint, there is a similar anatomical circulation in the villi in the joint as in the ciliary body and in the iris, increased irritation inducing stasis, rendering infection much more liable to be set up.

DR. BENJAMIN BAILEY, Lincoln, Nebraska, congratulated Dr. Irons and Dr. Brown on the work they had done along this line. Ophthalmologists had followed the old nomenclature of ciliary, specific, traumatic iritis long enough, and when they did not know the cause, and there had been no trauma and syphilis could not be demonstrated, the iritis was put down as being of rheumatic origin. He believed that the procedure undertaken by Dr. Brown, if followed up, would amount to a great deal. It was high time that ophthalmologists discriminated more closely regarding each type of iritis met with. In common with other ophthalmologists he had had the same result in finding oftentimes ethmoidal or accessory sinus disease of some nature that complicated the iritis. Again, he had been unable to find the cause and had to depend upon the usual remedies for treatment which the doctor had suggested, atropin, hot applications, and salicylate of sodium, etc. If this work was carried on we would be able to revamp the nomenclature and get the different forms with greater accuracy, and consequently would have better methods of treatment as the result of these investigations.

DR. GEORGE F. SUKER asked Dr. Brown whether in his experience with these cases he had noticed that in some types the iris as a whole or only a section of it was more acutely inflamed than the other adjacent areas. Could we not have in some of these conditions a localized iritis, one that did not involve the entire iris? This might give some clue as to the selective tendency of these toxins and the relation to the question of infection.

DR. BROWN, in replying to Dr. Suker's question concerning the type of the iritis, said the first case was an ordinary acute iridocyclitis, with only one (deep) synechia. In the second case all parts were markedly inflamed, iris, ciliary body and choroid, and no part of the iris was exempt from the inflammation. The third case was a severe serous iridocyclitis with only slight involvement of the iris aside from the great difficulty experienced in securing dilatation of the pupil.

NEW OBSERVATIONS ON CORNEA AND RETINA OF THE EYE.

Dr. Robert Von Der Heydt gave a translation of a lecture delivered February 26, 1916, by Dr. O. Haab of Zurich, Switzerland on this subject, from which we take the following extracts:

By the method of focal illumination and the loupe I have been able to first describe and isolate a keratitis, which I called the "gittrige" (grill-like). Later the Riband like keratitis (Bändertrübung) especially in infantile glaucoma, which was recently so thoroughly described, clinically and anatomically, in a thesis by Staehli. Then I have found the pupillary reflex which I have called "cortical reflex" (Hirnrinden reflex) and now am able to describe to you a new form of keratitis, which I have called "alphabet or letter keratitis" (Buchstaben-keratitis).

While we have made few changes in the loupee used for investigating, there has been much improvement in the method of focal light. Especially since we have the Nerst lamp giving a very strong and white light. With it one does not alone see better but actually more than with the ordinary gas or electric light.

The Nerst lamp has been recently improved by Gullstrand in the form of a slit (spaltlampe) with which we can easily see the corneal nerve fibers, as well as study the direction of flow of the aqueous, as recently described by Berg (Stockholm), and which has been experimentally proven by my able assistant Turk, when he described the causation of the Ehrlich vertical fluorescein line in the aqueous.

Lately I have also used the still more powerful electric Osram lamp, which is constructed according to the half Watt system. Its illuminating power is near that of actual sunlight, so that with it one can observe the reflection of the so-called magic Japanese mirror.

These small mirrors are made of bronze and on their reverse side show ornamentations such as animals, flowers, plants, or inscriptions. The front surface is absolutely mirrorlike but in a certain diagonal direction in good illumination you may with some difficulty see a faint reflexion of the figure on the back caused by very slight alteration in the mirrorlike surface and corresponding with the respective design.

Now, about the corneal disease I have designated Buchstaben keratitis. It is a rare affection. I have discovered seven cases in the past eighteen years. For its observation a very intense lateral illumination is necessary. One sees superficially small and larger zones composed of short, straight, sometimes crossing one another, raised, linear cloudings of the epithelium. In arrangement they resemble straight letters, such as A, W, V or X. The larger lines may for a certain length be followed by a parallel double border. Scattered among them may be small round infiltrated zones, or a line may be interrupted by a group of these dots.

There is mild ciliary irritation. In one to three weeks the process may terminate, but the characteristic part of this keratitis are sure to follow severe relapses. Reduction of intraocular tension may complicate and finally permanent clouding of the stroma and corneal surface may destroy the usefulness of the eye.

This severe type of eye disease is illustrated in this 25-year-old patient. She was discharged from our

clinic, October 28, 1915, after a year's treatment. Previous to this she had been under the care of four oculists. When we first saw her the useful vision of the left eye had been lost by corneal clouding. Her right eye had been involved for nine months previous to her visit to our clinic, and it showed distinctly the characteristics of the Buchstaben keratitis. In a most discouraging manner and in spite of all treatment the condition continued to progress for six or seven months. In this otherwise healthy individual a roentgenogram showed a very light shadow in left lung and as the tuberculin reaction was positive, we commenced using tuberculin Beranek, 26 injections; without visible improvement.

Her right eye was rapidly approaching the condition of the first involved left eye and possessed only a fraction of visual acuity. We then commenced injecting old tuberculin (Koch), and a radical change took place at once, ciliary injection subsided rapidly, cornea became smooth and commenced to clear up. After one month vision was 5/60, 4 weeks more 1/3 to 1/2 and a year after her admission to our clinic same was 6/8. Now, after four months you see an absolutely quiescent eye, with a mild corneal clouding, vision 6/6.

The old tuberculin treatment was carried out for three months, 24 injections, slowly increasing, 7 mg. was maximum. Her first involved eye, which shows peculiarly radiating linear cloudings showed no change, vision 1/10. There is no doubt in my mind that her right eye was on the way to a total loss of all useful vision and this was avoided by the use of old tuberculin.

Part 2 of the lecture deals with new observations on the fundus.

Dr. Von Der Heydt, in connection with Professor Haab's lecture, exhibited and reported two cases which bore some relation to the change described in the lecture. One was a case of choroidal rupture wherein after six months a red spot was seen in the macula. The other case was one of old neuro-retinitis in which the same red spot was observed. He had noticed and studied these red spots in one case for six months intermittently, and in the other for about two years. Both had shown identical characteristics. At one time, both spots, most markedly the one in the lady, were surrounded by a definite halo. This was an edema of the retina, and was definitely outlined and like a horse's collar, in shape. Later on these edematous zones flattened out and disappeared; they are practically gone now, but the reddish pathologic center shows decidedly. Thus in these two cases radically different causes brought on similar foveo-macular changes as a manifestation of insult to the retina.

A METHOD OF OPERATION IN COMPLETE OBLITERATION OF THE ANTERIOR CHAMBER WITH REPORT OF A CASE OF CORNEAL STAPHYLOMA

Dr. C. G. Darling said that during the past summer he performed an iridectomy in a case of corneal

staphyloma by making a very minute opening into the anterior chamber well back in the corneal limbus with a keratome, using sawing movements. This was enlarged as soon as he entered the anterior chamber with probe-pointed scissors; a spatula was passed between the iris and cornea to free the iris before introducing the iris forceps. In this case he obtained an almost immediate as well as a permanent flating of the staphyloma and normal tension. Later, when looking up the literature of this subject, he found this operation was similar to Gayet's method.

A short time ago a man entered his service at the County Hospital with a serpent ulcer of ten days' standing. Only a two or three millimeter margin of the cornea was left after perforation and healing.

A large staphyloma of the cornea was forming under the continuous use of a pressure bandage; the tension would rise, a fistula would form, this would close and tension go up again with increase in size of staphyloma, then the process would go through the same cycle again. The lens was still present in the eye.

Here the iris was very much stretched, thin and adherent to the corneal rim, only 2 or 3 millimeters from the limbus, so he did not feel he had enough room in which to do any of the operations of which he had spoken, or that any of them would open the iris angle as the iris was probably adherent at the angle, and would remain so after ordinary iridectomy as the iris would tear before freeing the angle.

An iridectomy was done in this case in the following manner: Hein's cyclodralysis operation was done opposite the widest area of sound corneal rim. The spatula when in the anterior chamber, separated the iris from the cornea; it was passed forward until the iris was somewhat torn from the corneal rim, the spatula being well curved so that it hugged the back of the cornea. With the point of a keratome using sawing movements the spatula was cut down upon well back in the limbus so that the cornea would be left untouched and the iridectomy would be well to the root of the iris to give good drainage. This incision was enlarged with scissors, but he believed a canaliculous knife, if very sharp, would have been better as he does not think it would cause as much trauma. The iris forceps were now introduced, the spatula removed, and an iridectomy of about 3 millimeters wide was made at the first attempt. Wishing to make the iridectomy wider he had to reintroduce the spatula to get the iris forceps between the iris and cornea. This was done on one side and then the other of the primary attempt, giving an iridectomy of over 10 millimeters wide well back at the root of the iris. This operation has caused some flating of the cornea, decrease in tension, and a little vision, which is now hand movements. The cornea in this case was so extremely thin that any tension above a negative one would cause some bulging, so another iridectomy was attempted on the opposite side of the cornea four days ago. On this side the iris had been more stretched and was very thin and atrophic, so that a piece of it would tear out whenever taken hold of. Here he

passed the spatula forward and cut the iris from the cornea rim for about one-third of its circumference, and as the iris is, of course, freed from the cornea at its root, at the same time, this freeing of the iris should act fully as well as iridectomy in establishing an anterior chamber and drainage. He saw the case today and the corneal curvature is perfectly regular.

Dr. Darling, in closing, thought the method he had described was of some advantage in saving eyes, especially in children with large perforating corneal ulcer, as the eye would aid in the growth of that side of the orbit. In a good many cases of ulcer of the cornea from gonorrheal ophthalmia and other diseases in children, the eyeball had to be removed and the orbit on that side did not grow. If this operation could be done, freeing the iris from the cornea, or an iridectomy done, the eyeball would be preserved, with possibly a little vision, and the orbit would grow on that side.

SARCOMA OF THE CHOROID

Dr. Lawrence J. Hughes, Elgin, Ill., spoke of having presented a case two months ago which was diagnosed as sarcoma of the choroid. The case was discussed by Dr. Fisher at the time who thought it was a typical case of this disease. Shortly after that the speaker removed the eye, and so far as microscopic examination of a section of the eye was concerned, there was no evidence of sarcoma.

(To be Continued.)

MACOUPIN COUNTY MEDICAL SOCIETY

The Macoupin County Medical Society met Tuesday, March 27, 1917, in the New Commercial Hall at Virden and was called to order by President F. A. Renner, of Benld.

The minutes of the last regular meeting were read and approved. Twenty-four members and visitors were present.

By the direction of the president the secretary had been publishing articles on tuberculosis in all of the newspapers of the county, fifteen in number, with the idea in mind of so educating the voters that at the next general election the proposition for a sanatorium might be carried.

The Society on motion unanimously endorsed this work and authorized the secretary to continue the publication of the articles in the press of the county.

The secretary reported having taken up the work officially for the Society of communicating with the members of the General Assembly of the local district regarding proposed medical legislation, which report was accepted unanimously and he was instructed to continue the same work.

Moved and seconded that as a token of our appreciation of the efficient work done by our secretary that he be given a button of the A. M. A., which motion carried unanimously.

The censors reported Girard as the meeting place for May and nominated the following officers for the coming year, who were elected unanimously: Presi-

dent, Dr. G. E. Hill, Girard; vice-president, Dr. W. L. Powell, Palmyra; secretary-treasurer, Dr. T. D. Doan, Scottville; medico-legal advisor, Dr. J. S. Collins, Carlinville; delegate, Dr. T. D. Doan, Scottville; alternate delegate, Dr. J. P. Matthews, Carlinville.

Dr. F. M. Wood, of Chicago, gave an address on the subject "The Vaccine Treatment of Rheumatism."

Dr. H. C. Blankmeyer, of Springfield, gave an address on the subject, "The Newer Simplified Methods of Feeding Normal Infants."

A rising vote was given the two physicians for their excellent addresses.

The meeting then adjourned to meet at Girard, Tuesday, May 28, 1917.

T. D. DOAN, *Secretary*.

MADISON COUNTY

The Madison County Medical Society met in the rooms of the Commercial Club in Collinsville on the afternoon of Friday, March 2, 1917, with President Dr. J. B. Hastings in the chair.

Twenty members present; three visitors.

The subject of compulsory health insurance was presented and discussed. Dr. Gossard moved that the chair appoint a committee of 15 members to go to the legislature at Springfield, at the call of the State Legislative Committee, to assist said committee in every way within its power and that the question of defraying the expenses of the committee be taken up and adjusted at some future meeting. Carried. Dr. Luster moved that the secretary be instructed to notify the Legislative Committee of above action. On motion it was ordered that Dr. Hastings be a member of above committee.

Attention was called to the Osteopathic Bill now in the Judiciary Committee of the House. Dr. Braner moved that the secretary be instructed to communicate with our representatives in the legislature expressing the sentiment of this society as thoroughly opposed to this bill. Carried.

Dr. J. L. Wiggins then presented a paper on "Morbidly Incident to Obscure Umbilical Hernia," and also presented a patient to illustrate the subject. He called attention to the fact that a very small hernia, possibly containing nothing but a small bit of omentum, was often overlooked, and yet could be the cause of many distressing symptoms and cause a condition that would disable a man from performing manual labor. He cited 28 cases in which he inverted the skin surrounding the umbilicus to act as an obturator and fastening it firmly by an adhesive strap. He reports great success with this method of treatment. The paper was very instructive and called out extensive discussion.

Dr. Barnsback moved that a vote of thanks be extended to Dr. Wiggins, which was adopted by a rising vote.

On motion adjourned to meet in Alton on the first Friday in April.

MONTGOMERY COUNTY

The annual medical clinic of the Society was held at the Hillsboro Hospital Tuesday afternoon, March 27,

and was conducted by Dr. Albert E. Taussig, Professor of Medicine, Washington University, St. Louis.

Twenty-two present.

Among the patients were a case of acute Graves' disease, a submaxillary cyst, pulmonary edema, appendicitis, tuberculous meningitis, a valvular heart lesion. The clinic was an unusually interesting one. The Society was fortunate to secure Dr. Taussig for this occasion, and all who heard him would be glad to have him with us again at some future time.

Dr. M. W. Snell was unanimously chosen as delegate to the State Society to take the place of Dr. R. W. Allen, who is not expected to be in the county at the time of the State meeting.

OGLE COUNTY

The regular quarterly meeting of the Ogle County Medical Society was held at the Court House, Oregon, April 17, 1917, at 1:30 p. m.

President A. H. Beebe called the meeting to order. Roll call found nine members present and seven visitors.

Dr. John B. Roe, Oregon, was elected to membership.

A communication was read from University of Illinois College of Medicine. The society passed a resolution favoring the resolution and asking for further information.

Dr. Charles J. Drueck, Chicago, read an excellent paper on "The Treatment of Hemorrhoids Under Local Anesthesia." This paper was ably discussed by Drs. Stealy, Murphy and Turner, Dr. Drueck closing the discussion.

Dr. Chas. C. Kost, of Dixon, read an able paper on Colles' fracture. Discussion followed by Drs. Beveridge, Beebe, Johnson, Murphy, Turner and Price, Dr. Kost closing.

The doctor gave particular stress on letting the arm hang down in all cases of Colles' fractures.

On motion of Dr. Beveridge, a rising vote of thanks was given Drs. Drueck and Kost for their excellent papers.

Adjourned to meet at Byron the third Wednesday in July, 1917.

DR. J. T. KRETSINGER, *Secy.*

WINNEBAGO COUNTY

The Winnebago County Medical Society met at Unity Hall, Rockford, on April 10. There were 21 members present. Reading of the minutes was suspended and the following program was rendered:

Dr. W. W. Hume reported a case of fistula of the horizontal semicircular canal.

Dr. Adolph Hartung of Chicago was introduced as the speaker of the evening. He spoke on the subject, "The Roentgen Diagnosis of Gastro-Intestinal Lesions," and showed numerous stereopticon slides to illustrate his talk. These slides truly proved that the x-ray is of much value in gastro-intestinal diagnosis.

Following the reading of a letter from Frederick R.

Green, secretary, Council on Health and Public Instruction of the American Medical Association, in regard to the second annual baby week campaign throughout the country on May 1 to 6, the chair saw fit to appoint a committee of three to cooperate with the Children's Bureau and the Woman's Club to make Baby Week in this territory a success. Drs. Boswell, Farrell and Gerald Allaben were appointed.

The following resolutions were read by Dr. Lichty:

WHEREAS, The physicians and sanitarians recognize that insanitary and crowded housing does more to continue sickness and cause death, as well as lower moral standards, than all other avoidable causes; therefore, be it

Resolved, By the Winnebago County Medical Society that the Rockford Realty Association be asked to refuse to list property for rent that has been inspected and disapproved by either or both the Housing Committees of the Winnebago County Medical Society and the Winnebago County Anti-Tuberculosis Association until such premises are put in sanitary condition. Also that the Chamber of Commerce list insanitary tenements and homes and jointly warn tenants and landlords.

It was decided that these resolutions be adopted and a copy presented to the Rockford Realty Association.

A letter from Dr. Edmund James, president of Illinois University, in regard to post-graduate work for practitioners, was read. Following discussion it was decided that the officers of the society form a committee to make further inquiry about this work.

Dr. Hartung was given a rising vote of thanks by the society for his talk.

C. M. RANSEEN, M. D., Secy.

Personals

Dr. E. J. Hoag, of Ridott, sustained a fracture from cranking his automobile.

Dr. George L. Eyster, of Rock Island, has returned from a three months' vacation trip through California and British Columbia.

Dr. Leon W. Kelso, Paxton, has been appointed local surgeon for the Illinois Central Railroad, succeeding Dr. Spencer S. Fuller resigned.

Dr. C. T. Foster, city physician of Rock Island, seriously infected after performing a surgical operation, is traveling in the west for his health.

Dr. A. H. Roler, after investigating the treatment of war prisoners by the German as a representative of the Allies, reports that they were better off than the poor in the large cities.

Dr. John W. Earel, Quincy, who is expected to resume practice after an absence of nearly a year on account of illness, has had a relapse and

may not be able to return to work for two or three months.

Dr. C. P. Caldwell was re-elected president of the board of directors of the municipal tuberculosis sanitarium of Chicago, and F. Bowden DeForest, was elected secretary at the annual meeting.

May 6 to 13 Dr. Otto T. Freer is to give a source of lectures, illustrative operations and demonstrations in Portland, Oregon, by invitation of the Portland Ophthalmological, Otological and Laryngological Society.

News Notes

—Medical students in Illinois colleges are assured of graduation if absent from college on service in army or navy hospitals.

—Students of the College of Medicine, University of Illinois, are having military drills twice weekly as part of the curriculum.

—The demand both for physicians and nurses on account of war activities is becoming urgent. Already nurses are at a premium in public institutions.

—Bonds from \$750,000 were voted in the spring election for an addition to the contagious disease hospital in Chicago. Two new wings will be built.

—Dr. Harry M. Weinberg, Chicago, recently arrested by federal officers for the illegal sale of morphine, is said to have been in charge of the "clinical work" of the Anti-Cigarette League.

—Prof. Morris Jastrow, Philadelphia, gave an illustrated lecture on "The Medicine of the Babylonians and Assyrians" before the Society of Medical History of Chicago, April 27.

—Dr. Charles P. Emerson, Indianapolis, dean of the Indiana University School of Medicine, delivered an address, April 13, on "Modern Medicine and the School Child," before the Illinois State Teachers' Association.

—A contract for the erection of the first unit of the Illinois Valley Hospital, Ottawa, has been awarded. The new building will cost about \$30,000 and will be known as the Diagnostic Pavilion. It will be one story in height and of masonry construction with high basement.

—At the quarterly meeting of the Warren County Medical Society, held in Monmouth,

April 15, Dr. Kellogg Speed, Chicago, delivered an address on "Military Surgery," illustrated by stereopticon views, and Dr. Wilber E. Post, Chicago, spoke on "The Use of Salts and Alkali in Nephritis.

—The directors of the Municipal Tuberculosis Sanitarium have undertaken a survey of the Chicago South Side where many Negroes from the South have settled in the past few months. The survey of the "Little Italy" district on the North Side disclosed several hundred cases within a few blocks.

—The directors of the Fenger Memorial Association have made a grant of \$400 to Pierce McKenzie for support of chemical and other work under the direction of Dr. E. R. LeCount. He will study the brain and other tissues from cases of heat stroke in order to determine, if possible, better than now known the cause of the high temperature in this condition.

—Messrs. V. Mueller and George Wallerich, president and secretary of the V. Mueller Surgical Instrument Company, have donated \$10,000 to the North Chicago Hospital independent unit for war hospital service. The Medical Women's Club, of Chicago, have pledged their services to the state in the name of a "United States Women's Military Reserve Corps."

—Aldermen Captain, Nance, Littler and Richert, a sub-committee of the Chicago Council, after a year's study of the charges against Dr. Sachs' management of the municipal tuberculosis sanitarium, reported: "There has not been presented, in the opinion of your sub-committee, one scintilla of evidence that in the slightest degree impeaches the integrity or that questions the efficiency or the competency of Dr. Theodore B. Sachs. On the contrary, every witness of standing examined, including Dr. Robertson himself, spoke in the highest terms of the service which he had rendered to humanity. The usual statement was that he was in a class by himself. His personal sacrifice and untiring devotion to the work which he had undertaken received universal praise."

Marriages

ROBERT SONNENSCHNEIN, M. D., to Miss Flora Kieferstein, both of Chicago, April 5.

HERMAN MORRIS ADLER, M. D., Chicago to Miss Frances Porter of Hubbard Woods, Ill., recently.

SOPHIA BILLENKAMP, M. D., to Mr. John Conrad Donis, both of St. Louis, at Clayton, Ill., April 4.

Deaths

ABBIE A. HINKLE, M. D., Evanston, Ill.; Hahnemann Medical College, Chicago, 1887; died at her home, April 2.

HARVEY A. WHITE, M. D., Chicago; Eclectic Medical Institute, Cincinnati, 1882; aged 78; died in Tampa, Fla., March 27.

HENRY W. OGDEN, M. D., Evanston, Ill.; Rush Medical College, 1881; aged 73; for many years a practitioner at Fort Atkinson, Wis.; a veteran of the Civil War; died at his home, February 17.

ARTHUR VON WERDER, Chicago (license, Illinois, 1889, on certificate from War Department, Russia, 1883); aged 75; a practitioner since 1859; died at his home, March 23, from cerebral hemorrhage.

MAXIMILIAN C. CORNELIUS, M. D., Chicago; John A. Creighton Medical College, Omaha, Neb., 1895; aged 43; died in St. Luke's Hospital, Chicago, April 3, after an operation for carcinoma of the bladder.

JOHN DEAN SCOLLER, M. D., Pontiac, Ill.; University of Buffalo, N. Y., 1870; aged 81; for nineteen years superintendent of the State Reformatory, Pontiac; died in that city, March 31, after a surgical operation.

JOHN J. STITES, M. D., Pontiac, Ill.; Eclectic Medical Institute, Cincinnati, 1850; Medical School of the Valley of Virginia, Winchester, 1860; aged 90; formerly a member of the Illinois State Medical Society; died at his home, March 25.

WILLIAM WASHINGTON EVERETT, M. D., Highland, Ill.; College of Physicians and Surgeons, Keokuk, Ia., 1877; aged 60; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; surgeon to St. Joseph's Hospital, Highland; died in a hospital in St. Louis, March 30, from a nervous breakdown.

GEORGE FULLER HAWLEY, M. D., Chicago; College of Physicians and Surgeons in the City of New York, 1868; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society, Mississippi Valley Medical Association and American Academy of Ophthalmology and Oto-Laryngology; professor of otology, rhinology and laryngology in the Illinois Post-Graduate Medical School; a member of the staff of Cook County Hospital, and the Illinois Charitable Eye and Ear Infirmary; one of the first men in Chicago to specialize on diseases of the eye, ear, nose and throat; an assistant of Sir Morrell Mackenzie in the early eighties; died at his home, April 16, from chronic myocarditis.



ELMER B. COOLLEY, M. D.
PRESIDENT ILLINOIS STATE MEDICAL SOCIETY, 1917-18

terity, and as with the last smouldering ember, hope expires, a cry goes up to God for vengeance.

Shall crimes like these go unpunished? Then the deeds of men are not recorded! In the clouds of smoke that roll heavenward o'er that holocaust tonight, I can see but the clouds of dissension gathering over those we are to conquer. In the flames that leap in fiendish glee among the ruins I can see but the following fires of merited retribution and in the totter and fall of that, the greatest funeral pile in the annals of all the world, I can see but a haughty monarchy go tottering down the ages to its ruin.

There will come a penitent, pitiful, poverty-stricken peace some day—peace that may be permanent, but bought at a staggering price. Then will the ashes of millions of men, swept from the lands they had loved so well, float peacefully down o'er the shimmering sands of those crimson Continental rivers and out to sea, there to ebb and flow with the ceaseless tide—a wandering curse upon a causeless war.

The monoliths of our government have been sealed in blood, paid in righteous cause, but from the ashes of our illustrious dead there arose, phoenix-like, a Goddess—Liberty. Upon our eastern coast her beautiful statue has stood for years, and whether kissed by the first ray of morning light, bathed in the effulgency of a blazing noon-day sun or wrapped in the curtain of night, she has stood supreme. High in her right hand a flaming torch, and as the light gleamed out across the black waters through tempest or twilight or midnight or dawn, we said, "Liberty will enlighten the world." But alas! Our dream has been in vain, and for two long years has the regal goddess stood defiant, her feet firmly planted on American soil, her right hand extending an olive branch, while with the left she held in leash the dogs of war, her face to the open sea, her eyes on a burning world, her soul filled with horror, misgiving, but faith in the beautiful land that gave her birth.

And today the glorious goddess stands fighting for her life;

A world gone wild with blood and iron has driven her to strife.

America! Land of the free, home of the vaunted brave,

You boast your cradled liberty, you dare not be her grave!

The voice of duty calls you, to you the goddess clings;

If you're worthy of your forebears, 'tis the twilight of the kings.

THE CONQUEST OF CANCER.*

ALEXIUS MCGLANNAN, M. D.

BALTIMORE, MD.

The Conquest of Cancer is the most important problem in medicine today. The truth of this statement is apparent if we will consider the growing mortality from cancer, explain it any way we will, and if we will bear in mind the large percentage of preventable human suffering that follows imperfectly treated or untreated cancer.

A host of laboratory workers, experimenters and statisticians are engaged in all manner of research, studying the nature and effect of this terrible malady and searching for its underlying cause. As yet, however, we have no knowledge of the essential cause of cancer. The various organisms which from time to time had been brought out as the essential cause have failed to stand the test of repeated experiment. The work of the plant pathologist with plant tumors is the nearest approach to a solution of the essential cause which we have reached, but this is so far from application to human cancer that we cannot as yet consider the essential cause of cancer when we take up the problem of the conquest of this disease.

While we all hope for the discovery of this cause and for its accompanying biological or chemical antidote, we are confronted by the fact that the only cures of cancer so far recorded and unmistakable, are in the domain of surgery.

Beginning about thirty years ago, certain men having ability in pathology and skill in surgery brought out new and more radical operations for the cure of cancer. It was proved that in general the tumor, originating in an organ, grew within the confines of that organ for a period of time. Later it spread out by way of the lymphatic channels to the group of glands which drained the region of the original focus. At this point its progress was again arrested for a variable length of time. Leaving this group of glands,

*Oration in Surgery, presented at the 67th annual meeting of the Illinois State Medical Society, at Bloomington, May 10, 1917.

the tumor cells usually were found to spread out in various directions, invading distant organs and tissues. Occasionally, however, a second arrest of the process occurred in another group of glands.

With this knowledge, the modern cancer operation was devised, the principle being to remove in one piece the seat of the original tumor, together with the draining group of lymphatic glands and the intervening lymphatic channels, this to be done without at any stage of the operation cutting into the tumor or the channels between it and its draining glands.

It was not many years before this principle came into general use in devising operations for the cure of cancer, nor was it long until the surgeons noted that the limit of technical application had been reached; and began, therefore, to ask that patients be brought to operation earlier. Wherever the ultimate results of cancer surgery have been collected, the same conclusion has been reached. The time of best results from operation is the period in which the tumor is confined to the locality of its onset. The duration of this period varies in wide limits in different individuals, and with different types of tumors. The measure of this duration can never be accurate, because a tumor must grow to an appreciable size before its presence is noted. The duration of this period is never long enough to justify procrastination on the part of the patient or the physician.

In the next period, that of grandular involvement, there is possibility of cure, but the probability falls to about twenty-five per cent. of that in the first period. Again, after the tumor cells pass this first barrier of defense, the cures fall to less than ten per cent. If we take cancer of the breast as a specific type, we find that in all the cancers of the breast without a metastasis, we have about eighty-five per cent. of cures with the radical operation. If we take those cancers in which the tumor has metastasized to the axilla, the percentage of cures falls down to about twenty per cent., while if we go to the cancers in which the glands above the clavicle are involved, the patient at this time has lost nine out of ten chances for cure as compared with the patient having a similar tumor when operation is done when in the early stage.

These facts are well known and have been common knowledge of the medical profession for

many years. In spite of this, however, the statistics of a large clinic today will show that of all the patients applying for relief from cancer in its various forms from twenty-five to fifty per cent. are hopeless and inoperable at the time of their examination.

What is the cause for the existence of this large group of hopeless sufferers? First, procrastination—procrastination by the patients themselves; some fear surgery, some fear cancer. In others there is the feeling that cancer brings disgrace to the victim or to the family.

Second. Procrastination by the physician. Ignorance is most often the cause of delay by the physician; sometimes, however, it is indolence. Nearly one-third of the patients suffering from cancer of the rectum come to the surgeon without having had a rectal examination. Remember that cancer of the rectum is most often situated in an area accessible to digital examination, that the digital examination of cancer is almost pathognomonic; it is remarkable that one out of three patients that come with cancer have passed through the physician's hands without having had this examination. Of course, we don't want to consider the patients who have been operated on for hemorrhoids, who have a cancer an inch further within the rectum and who have never been examined inside of the rectum.

Third, improper intervention, usually done in the early curable stage of external cancer. This intervention takes many forms. The commonest are incomplete excision by an untrained man, excision of a piece for diagnosis, the use of caustics, the use of radium and x-ray on improperly selected cases. Bear in mind that this intervention nearly always takes place during the early stage of the disease, when complete removal by surgical operation offers an almost certain cure. There is no question that the patient with cancer is much better off without operation than imperfectly operated on.

Fourth, tumors in which the metastatic extension occurs early so that the glands may be involved before the original growth shows signs of malignancy, or those tumors in which the metastasis takes place through unusual routes, reaching localities impossible to follow by surgery. For example, mediastinal metastasis from cancer of the breast.

How are we to overcome these deplorable conditions? It is generally agreed that we have

reached the limit of technical expansion in our cancer operations. Surgeons cannot perform operations more extensive than those already devised. Therefore, it becomes necessary to secure the patients before their tumors have advanced beyond the limits of surgery. If, however, we wait for symptoms of malignancy in all cases, we shall have a percentage of failures great enough to discourage any procrastination.

We are now in a dilemma—either we wait for symptoms of malignancy, in which event we may have lost our chance for cure, or we perform an extensive operation for the relief of a benign condition. To avoid this situation the surgeon who operates for the cure of cancer must be able to recognize it as it appears in the wound at exploratory incision. Should the doubtful case therefore prove cancer at such an exploration, the complete operation must be performed at once. More than this, he must have a knowledge of those benign lesions which occur in cancer localities, and so often appear to be fore-runners of cancer. Removal of these precancerous lesions will give one hundred per cent. cures.

The ultimate conquest of cancer, therefore, depends on the removal of these pre-cancerous lesions. This in turn depends on teaching their significance and importance to physicians and the laity.

In the skin and exposed mucous membranes the pre-cancerous lesions are: 1, congenital or acquired tumors; 2, unhealed wounds or ulcers; 3, extensive scars which are subject to irritation; 4, areas of epidermis subject to slight but frequent irritation. Occasionally one lesion will be found acting on another, for example, irritation of a congenital tumor producing an ulcer. Warts and moles situated in pressure areas should be removed. Especial attention should be given to the smoker's burn of the lip, the tobacco chewer's tongue and buccal mucous membrane, the irritating tooth and sore mouth. Any of these lesions which fail to heal within a month after removal of the source of irritation require excision by the knife or cautery. This period of waiting may be well utilized in making Wassermann and similar examinations, also in attention to the teeth.

Ulceration of the external genitalia, not distinctly due to venereal infection, should always be regarded with suspicion. A phimosis coming on in adult life is strongly suggestive of cancer,

or one of its fore-runners. In the breast, the onset of a single tumor after puberty is sufficient reason for its removal. After twenty-five years of age, the occurrence of pain, a lump or lumps in the breast, discharge from the nipple, changes in the nipple or the skin of the breast, are urgent warnings. The single lump always demands immediate operation. In about fifty per cent. of cases the tumor will prove benign, and its removal will be accomplished with the minimum of deformity. In the other fifty per cent. we shall find our opportunity for removing an early curable cancer of the breast.

Pain and discharge from the nipple without tumor doesn't require operation. Such patients, however, should have repeated, careful examinations at intervals for six months. Of course, the examination must be very careful and certainly exclude the presence of the tumor because the discharge from the nipple means some change in the epithelium of the breast, and this may be the beginning of a tumor. These tumors, however, are adenomas or cystic papillomas, tumors which have a definite period of benign existence quite long before they become malignant so that we are safe in avoiding operation until we can feel the definite tumor.

Multiple lumps, coming on after twenty-five years of age, require most careful study. These lumps are areas of senile parenchymatous hypertrophy, either cystic or adenomatous. In the latter group there are some which will later become cancer. In a certain number of cases the lumps disappear spontaneously. Before the menopause, delay is permissible, provided the patient is kept under observation and all sources of the reflex disturbance such as menstrual irregularities, digestive disorders, etc., are treated. Spontaneous resolution should occur within six months of the onset of the masses. Persistence beyond this time is an indication for removal of the breast. With women beyond the menopause, early removal of the breast is the proper treatment.

Internal cancer does not give such a distinct warning. Urinary suppression, hematuria, sudden onset of indigestion, constipation or diarrhea, menstrual irregularities, abnormal discharges and bleedings are danger signals. A patient coming with any one of these symptoms should have a careful examination to exclude the presence of cancer.

A word must be said regarding the position of radium, x-ray, cytolsins, and similar non-operative methods in the treatment of cancer. At present we must look on these agents as palliatives to be used in non-curable cases, or as adjuncts after surgery. As yet, we have no authentic record of a cure of cancer by any means except early, complete surgical operation.

114 W. Franklin St.

A SUGGESTION IN THE TREATMENT OF PNEUMONIA AND OTHER AFFECTIONS CAUSED BY THE DIPLOCOCCUS OF WEICHELBAUM.*

EDWARD H. OCHSNER, B. S., M. D.,
CHICAGO

Pneumonia is one of the few common and highly fatal diseases in which the mortality rate has not showed any marked decrease in recent years. Many statistics could be cited to substantiate this statement, but one from the Chicago Health Department for the year 1916 will suffice. During that year 9,031 cases were reported to the Health Department by the physicians of Chicago and during the same period 3,883 deaths were reported from this disease, or a mortality of approximately forty-three per cent. This rate is unquestionably somewhat high, because some of the milder cases of pneumonia are probably never reported to the department, and also because in a considerable proportion of fatal cases the pneumonia is simply the end; many complications, such as senility, nephritis, diabetes, cardiovascular diseases, etc., having so devitalized the patients that they become easy prey to pneumonia. But even with these cases eliminated, the mortality rate in this disease is still much too high,—evidence enough that the methods of treatment employed are very ineffective, and this in spite of the fact that innumerable studies by individual investigators and institutions have been undertaken to find some better means of treating this disease.

During the past year I have had some striking experiences with a considerable number of surgical cases in which the causative factor of the disease was the diplococcus of Weichselbaum. In these surgical cases I have found boric acid very valuable; in fact, it seems to me that in

cases where the diplococcus of Weichselbaum is the causative agent, boric acid is a specific.

This experience has forced me to the conclusion that to try this remedy in pneumonia caused by the diplococcus of Weichselbaum would be well worth while and might lead us to a real solution of the problem. I will give brief histories of cases which have lead me to this conclusion:

On September 26, 1916, a patient came to me with a history that six weeks previously, shortly after bathing at Diversey Beach and accidentally swallowing some water, he developed severe pain in his throat, a blistering of the mucous membrane of the nose and throat, ringing of the ears, with subsequent marked impairment of hearing.

On examination, deafness and pain of the right ear had disappeared, but still very deaf in left ear, pain and tenderness in left occipital region, mastoid not tender or painful. Saw him again on October 5; no change in condition. Then did not see patient until November 1, when I found a large, tender, painful and fluctuating swelling behind left ear. I sent him to the hospital, had him anesthetized, incised the abscess, instituted through and through drainage. During the operation I found a denuded area of bone about three-fourths of an inch in diameter about the site of the occipito-temporal suture. Applied boric acid and alcohol dressing. These dressings were changed every two or three days, seven times, when the wound was completely healed and the patient has remained entirely well. On examination the pus proved to be pure diplococcus of Weichselbaum.

Just about the same time another patient, male, came under our care with almost the same history, except that in his case a double otitis media with perforation of both ear drums had developed, and instead of denuded area of bone a funnel-shaped necrosis of the petrous portion of the temporal bone was found at operation. Microscopic examination of the pus showed diplococcus of Weichselbaum and bone cells. Patient recovered promptly under the same treatment that the first man received. The unexpected thing in both of these cases was the rapidity with which the wounds healed.

The consensus of opinion among the best surgeons of the world is that in an acute and sub-acute osteomyelitis it is best to simply drain the abscess and later to remove the sequestrum. I followed this rule, fully expecting to find it necessary to do a sequestrotomy later. The experience with these two cases set me to thinking and I concluded to try the same remedy for this infection whenever I came across it.

On December 23, 1916, a married woman came to me with a history that eighteen months previously she began to be troubled with a leucorrheal discharge. Nine months ago she had a curettment by a competent

*Read before the Chicago Medical Society, April 18, 1917.

gynecologist and five months later another curetment, with no relief. In fact, the discharge became steadily worse, and this in spite of the fact that she had douches of various kinds and strengths during the whole time. When I examined her the discharge was tenacious, profuse, greenish-white, irritating, so irritating, in fact, that the vulva, pubes and perineum were eroded, very painful and tender. On examination, the diplococcus of Weichselbaum was found in practically pure culture. Diplococcus of Neisser could not be found even after prolonged search. I gave the patient two douches a day of saturated solution of boric acid. A week later she reported that she was a great deal better, and two weeks after that, except for a little itching, the symptoms had all disappeared. On February 22, 1917, the diplococcus of Weichselbaum were found sparingly in the smear, but the symptoms had all disappeared.

On January 7, 1917, a mother brought her nine-year-old daughter to me with the history that the little one's health had been failing for some time and that there was a peculiar odor about the little one's underclothes, in spite of the fact that she was an unusually cleanly child and received a daily tub bath. On examining the urine we found a trace of albumen, some pus corpuscles and the diplococcus of Weichselbaum. I gave the patient five grains of boric acid by mouth twice daily and in ten days all trace of albumin, pus and micro-organisms had disappeared from the urine, which has been normal since. The disagreeable odor has disappeared and she has regained her former robust health.

On January 30 I operated on a patient for a stone of the left kidney and a stone in the bladder. He made an uneventful recovery, passed his urine normally on the fourth day, was up and about the eleventh post-operative day and was ready to go home on the fourteenth post-operative day, when he was taken with a severe pain in the right side of the chest, with cough and expectoration of a small amount of tenacious bloody mucus. Given one-half ounce of saturated solution of boric acid three times a day, symptoms all subsided in a few days, except shortness of breath and increase in dullness over right side of chest. On the twenty-eighth post-operative day the dullness had extended up to the right nipple, trochar inserted in seventh interspace, right mid-axillary line, and about one ounce of flocculent semi-purulent fluid removed, which contained diplococcus of Weichselbaum in pure culture. Dullness gradually disappeared, patient left hospital seven days later with only slight dullness and no other symptoms. Has been entirely well since.

On February 20 a patient was examined with a severe pharyngitis, short hacking cough, slight tenacious expectoration, with sinovitis of both knees. Was placed on five grains of boric acid in one-half cup of hot water every three hours. Four days later practically all of the symptoms had subsided.

In addition to the cases above cited, I have, during the past winter, treated a considerable number of patients suffering with severe pharyn-

gitis and bronchitis, in whom the diplococcus of Weichselbaum was evidently the cause of the infection as shown by the overwhelming number of these micro-organisms in the expectoration. Some of these cases had been treated for a considerable time with ordinary alkaline expectorants without benefit, but responded quickly to five grains of boric acid given six times daily.

Some of the chief characteristics of these infections were the tenacious sputum, persistent hacking cough and severe pain. One patient described the latter symptom by saying he felt as though he had a hot poker in his throat all the time. All symptoms improved immediately and left entirely within three or four days in every case thus treated.

The statement of McFarland, that the diplococcus of Weichselbaum is the cause of fully seventy-five per cent of all pneumonias is, I believe, quite generally accepted. If boric acid promptly relieves symptoms in all other infective conditions where the diplococcus of Weichselbaum is the causative agent, is it not reasonable to expect that it will be effective in those pneumonias, at least, where the same micro-organism is the causative factor? I have reported these cases with a hope that those of you who see many cases of pneumonia will give the suggestion a fair trial.

The fifth case above reported, the one with the kidney and bladder stones, who came down with what seemed to be a pleuro-pneumonia and subsequently with a pleurisy with effusion, certainly would indicate that the treatment is effective. I fully expected this man to develop a typical lobar pneumonia, but instead he developed a pleurisy with effusion, which subsided very quickly under the treatment above suggested.

I believe that one of the principal errors we have made in the treatment of pneumonia has been that most of us have given alkaline expectorant mixtures, which I believe have favored the growth of the diplococcus of Weichselbaum and have made it more difficult for the system to develop immunity. That this organism needs an alkaline medium for its growth has been known by bacteriologists for a considerable time, but for some reason this knowledge has not been made use of by clinicians in general. Only one physician, so far as I have been able to find, advises against the use of alkaline expectorants, but does not give any reason for his opposition to these mixtures.

I have had a number of cases of severe pharyngitis with severe rasping cough who had been treated for five or six weeks with the ordinary alkaline expectorants and opiates without the slightest benefit, whose symptoms disappeared within a short time upon being given five grains of boric acid six times a day.

In this connection I will give an abstract of a history of such a case that is very interesting:

Patient, physician's wife, thirty-one years of age, has had one child. On February 23 attended a gathering in a hall where she was exposed to a draft and felt chilly. Three days later suffered a severe chill with headache; sore throat developed, following this rawness with slight edema, no spots. Coryza developed February 28, with slight cough. Tincture iodine, m. V in milk seemed to have a favorable influence on all symptoms and patient was out one warm day, but as the iodine seemed to produce slight nervous symptoms, it was withdrawn. Cough and expectoration seemed worse immediately after; mucus was white and tenacious. Another physician was called in on March 31 and 10cc. of anti-streptococcic serum was given. Local reaction was quite severe, but constitutional reaction not marked. Temperature 99° F. Symptoms unchanged; coryza severe; cough severe at night, controlled, however, by two or three drams of paregoric. On April 5, 250,000,000 P. D. & Co. catarrhal vaccine was administered. At the end of twenty-four hours all symptoms were suddenly aggravated; coryza severe. Two days following right upper bicuspid became tender; tenderness extended up toward the right eye, gums slightly swollen. The next day corresponding tooth of opposite side showed disturbance; pains were felt in both ears, expectoration profuse. Pledgets soaked in saturated solution of boric acid were placed in the mouth between the gums and the lips. Immediately it was noticed that cough improved, along with improvement in tooth condition. After two days pain in teeth subsided, boric acid pledgets discontinued and cough immediately became worse. Patient came under my care on April 8, suffering, in addition to the above symptoms, with a severe trifacial neuralgia; was placed on two drams of saturated solution of boric acid six times a day and condition began to improve immediately and progressed favorably though somewhat more slowly than in most similar cases thus treated—the slow improvement may possibly be accounted for by the previous overdose of serum and vaccine.

My experience, as above outlined, leads me to believe that boric acid is just as much a specific for infections caused by the diplococcus of Weichselbaum as quinine is for malaria and diphtheria antoxin is for diphtheria, and I firmly believe that if the suggestions above made were generally adopted, the mortality in pneumonia could be very greatly reduced, and I sincerely hope that the general practitioners of this society

will give it a fair trial, particularly as boric acid is relatively non-toxic and five grains every three hours for adult, with relatively smaller doses for children, can scarcely do any harm. However, I would urge upon the profession most emphatically that while they are giving the boric acid, not to give the patient alkaline expectorant mixtures, as these are likely to alkalize the blood and favor the growth of diplococcus of Weichselbaum, thus negating to a large degree the action of the boric acid. In addition, it is, of course, desirable to make a careful microscopic examination and to determine that the pneumonia is actually caused by this micro-organism, as it is with this micro-organism particularly that I have found boric acid of great value.

It may seem somewhat presumptuous for a mere surgeon to even offer this suggestion to internists and general practitioners. However, the unsatisfactory results obtained by the methods of treatment in vogue at present make me bold to offer this suggestion, particularly when we remember that historically most of the great scientific and medical truths have been discovered not by specialists in their own field, but by men outside of the specialties,—thus the law pertaining to the conservation of energy was not discovered, as one would naturally suppose, by a physicist, but by a physician; bacteriology, the very foundation of modern medicine, was given its first start, not by a pathologist, but by a botanist; the spirillum of cholera and the tubercle bacillus were discovered, not by a bacteriologist, but by a country practitioner; the first great work in agricultural chemistry was written, not by a professor of agriculture, but by a physiological chemist.

These considerations have impelled me to publish my observations with a hope that possibly at least some improvement might be attained in the treatment of pneumonia and allied affections.

2155 Cleveland Avenue, Chicago.

THE ROLE OF SYPHILIS IN INTERNAL MEDICINE.*

ALDRED SCOTT WARTHIN, M. D., PH. D.,
ANN ARBOR, MICH.

Professor of Pathology in the University of Michigan

Mr. Chairman, Ladies and Gentlemen, Members of the Illinois State Medical Society: I am very appreciative of the honor of being asked to

*Oration in Medicine at the Annual Meeting of the Illinois State Medical Society, at Bloomington, May 9, 1917.

give the Oration in Medicine, and still more appreciative of the fact that a number of members of this association have asked me to speak of the results of my own work on syphilis. Therefore, I have chosen for this afternoon's address the subject, "The Newer Pathology of Syphilis and Its Significance in Internal Medicine." I think I may be safe in saying that the greater part of this audience—certainly the older portion of it—has been contemporary with that wonderful advance in bacteriology and immunology that has characterized the last thirty years in medicine. As we look back over these years, however, we cannot avoid the consciousness of a marked change—or, rather, changes—in our conceptions of infection and the infectious diseases. At first the problem of infection seemed so simple; everything was solved by the discovery of the infective agent. To those of us who entered medicine during the eighties or early nineties there must come memories of the thrills of enthusiasm with which the discovery of each new infective agent was welcomed, and of the optimism thereby engendered as to the ultimate eradication of such agents of infection.

With the discovery of the tubercle-bacillus and the early studies proving the etiological entity of animal and human tuberculosis, of acute military tuberculosis, caseous pneumonia, pulmonary consumption, chronic fibroid phthisis and tubercles of the serous membranes; and that many affections of various organs, kidneys, bones, joints, genital organs, etc., were one and the same disease, it seemed to us, in our first confident enthusiasm that the problem of infection had been solved. We hoped and we believed that in a short time the etiological problems of the other infectious diseases would be similarly solved, and that following the discovery of the infective agents it could be but a short time relatively before the human race could be freed from these afflictions.

The literature of the period reflects this optimism as to the victory of scientific medicine over the infectious diseases. Tuberculosis would be conquered in ten years, in one generation, or, perhaps, in two! With the discovery of the typhoid and the diphtheria bacillus, and the other pathogenic organisms that followed in rapid succession, the same attitude prevailed. The problem of infection was simply the infective agent and the damage caused by that agent. If

we discovered the cause of infection, we had caught the hare; it was ours, we could cook it.

As our knowledge of bacteriology progressed we found that infection was, after all, not quite so simple a problem—it was not simply a question of the entrance into the body of a harmful agent, and the damage done there by that agent. We came to believe that infectious disease meant more than this—it was also a reaction on the part of the human body.

Studies showing the constant presence of pathogenic organisms in the human body, without apparent damage resulting to the body, or apparent reaction to these organisms—pyogenic cocci in the mouth and other body passages, pathogenic organisms in the gastro-intestinal tract, etc.—led the way toward the recognition of the pneumo-coccus, diphtheria, and typhoid-carrier. The great problem of the germ-carrier was gradually placed before us; and we came to realize that infection was something more than the action of an injurious agent and the response of the body to the damage produced by that agent. From the simpler conceptions of *bacteriology* we advanced to the more difficult problems of *immunology*. Infection gradually came to be regarded as a great complex biological reaction between two living biological systems—the infective agent on one hand, and the human organism on the other. Today we look upon the problem of infection in a very different way from that of twenty-five years ago, and with a conception quite undreamed of at that time. Deeper problems of infection now assert themselves in a most striking way. Today we know that infection means, in many cases, the persistence of the infective organism within the body after all symptoms of the disturbance caused by the former or the reaction of the latter to this damage have disappeared. An apparent "healing" or "cure" of an infectious disease may mean that the infective injurious agent and the human body have entered into a sort of partnership—a mutual compromise, rather than an armed neutrality—in which the body has adapted itself to the infective organism, and the latter has adapted itself to the body. The infective agent remains in the body, for months, for years, or for the remainder of the individual's existence. The infective agent has acquired a saprophytic symbiotic existence; the body has acquired what we call immunity.

Our first important practical knowledge of the significance of such apparently cured infections came in the case of gonorrhea, a disease which in the early nineties was generally thought to be a very mild affection in the great majority of cases. I myself was taught by my clinical teachers of that time that gonorrhea was a simple thing, practically a joke, easily cured. But before the nineties were over this conception of gonorrhea and gonococcus infections had changed. The significance of the gonococcus carrier in the etiology of pelvic inflammations of women—the persistence of gonococci in the genital tract of men, and the later infection of wives—has so changed our conceptions of this disease that today one may hear physicians say they would rather have syphilis than gonorrhea, believing the former infection to be more easily curable than the latter.

But what is true of gonorrhea is true of other infections. Today we realize that the man who contracts malaria is probably a carrier of the organism of malaria for the remainder of his life. The patient who develops a clinically recognizable tuberculosis probably also carries tubercle bacilli in his body as long as he lives. From the time of our first respiratory infection we carry streptococci in our mouths; a certain number of individuals will continue to carry the pneumococcus, a still smaller number the diphtheria bacillus. The human body is a home for many organisms, not only as far as its passages and cavities are concerned, but also probably in its solid tissues and organs. From lymph-nodes and spleen especially organisms may be obtained, probably constantly; as the diphtheroids and others, regarded from time to time as etiological agents in Hodgkin's disease, pernicious anemia, etc.

What is true of these infections is, I believe, especially true of syphilis. The organism of this disease, the *Spirochaeta pallida*, was discovered in 1903, fourteen years ago. With the discovery of this etiological agent it has been possible to rewrite the pathology of syphilis. The studies of this parasite in human tissues have revealed the fact that in individuals who are apparently well, who have no clinical signs of syphilis, no history of infection, no reactions indicating the presence of active syphilis—negative Wassermann—certain organs and tissues may show the presence of spirochetes corresponding morphologic-

ally in every way to the *Spirochaeta pallida*; and associated with these organisms there are slight pathological lesions that do not appear above the clinical horizon. The same thing is true of the organs and tissues of apparently cured cases of syphilis with definite clinical history of infection. Further, in individuals with or without a clinical history of syphilis, who present various pathological conditions, such as myocardial insufficiency, aortic sclerosis, chronic nephritis, diabetes, hepatitis, adrenal insufficiency, and many other vague and obscure conditions not diagnosed at all, the same organism and the same tissue lesions are present, showing that these conditions are in reality due to syphilitic infection. In all of these spirochete carriers the spirochetes are not absolutely inactive, but are causing some damage. This damage is shown, however, in an entirely different way from that ordinarily accepted as syphilis clinically. These cases are not the ones seen by the dermatologist or syphilologist. They fall within the province of internal medicine when the damage done becomes clinically manifest. The pathology of these lesions is also quite different from that ordinarily accepted as syphilitic. As the result of the discovery of the *Spirochaeta pallida*, and of our ability to demonstrate this organism in the tissues by means of Levaditi's silver-impregnation method, we must greatly alter our old conceptions of syphilis, accept for this infection a new pathology, and include within the range of its clinical manifestations a large number of conditions belonging to internal medicine, the syphilitic nature of which has not before been positively demonstrated.

My studies of syphilis were begun in 1905 with the study of congenital cardiac syphilis, and for a number of years I had an opportunity of collecting and studying a large number of hearts from cases of congenital syphilis; and as the result of that study it was shown that spirochetes could be present in enormous numbers in the myocardium in congenital syphilis without the production of any recognizable histological lesions at all. In other cases there were found associated with the presence of spirochetes various pathological conditions that never before had been recognized as syphilitic in nature.

It was a very natural thing to follow the studies of congenital cardiac syphilis with an investigation as to the occurrence and nature of

adult syphilis of the heart. My pathological material from the University Hospital in Ann Arbor was particularly suitable for this study. Although the autopsy service is a relatively small one (30-50 autopsies yearly; recently increasing about three times this number) it was made up largely of chronic cases entering the medical clinic with clinical conditions not in any way suspected of being syphilitic. The pathological study of these autopsy cases has shown that about one-third of them have been cases of active latent syphilis, showing spirochetes associated with pathological lesions not before recognized as syphilitic.

The old pathology of syphilis was essentially the gumma. Before the days of the *Spirochaeta pallida*, when a gumma was found the pathologist could give a positive diagnosis of syphilis; but in the absence of the gumma he could not make such a positive statement. The occurrence of inflammation or fibrosis unassociated by gummatous granulomas could not be taken as certain evidence of syphilitic infection, no matter how strongly their syphilitic nature might be suspected.

Today, I think, we are in a position to make more positive statements. We find the spirochete associated with inflammatory processes showing no gummatous character. We know, therefore, beyond doubt that these lesions are also syphilitic, as much a part of the pathology of syphilis as is the gumma; or rather much more so, because they are much more frequent than the gumma. The newer pathology of syphilis is not the gumma. The gumma is relatively a rare lesion of syphilis. The most common pathological lesion produced by the spirochete is a mild, chronic inflammation, usually minute in extent, but widely scattered, lasting many years, producing a slowly progressive fibrosis and parenchymatous atrophy and degeneration, most commonly found in such important organs as the heart, aorta, adrenals, pancreas, testes, blood vessels and the central nervous system. In the last-named a gliosis rather than a fibrosis of course takes place.

The syphilitic nature of such minute chronic inflammations and fibroses was suspected by the older pathologists. It was the pathologist who first asserted a syphilitic etiology for aortic aneurism, although he could not positively prove this; the pathologist also, before the clinician, was quite sure that paresis and locomotor ataxia

were syphilitic. The *orchitis fibrosa chronica syphilitica* of the older writers was also regarded as syphilitic in etiology long before the days of the spirochete. Thickenings of the meninges, sclerotic changes in blood vessels, fibrosis of the heart, and even a general fibrosis of the body have been regarded as syphilitic in origin by some of the great gross pathologists. The assertion of Kolisko, twenty-five years ago, that "the tissues of the old syphilitic are tougher than those of the ordinary man," has received definite proof in these studies. It was one of those astute generalizations based upon many observations of the dead body of which the Rokitsansky school of gross pathological anatomists made so many but could not absolutely prove.

My work today has proved the truth of these old suspicions and generalizations. The individual who has become infected with the spirochete of syphilis has throughout his body many foci of spirochete colonization, producing slight local damage and slight inflammatory reactions, leading ultimately to a fibrosis and induration of the connective tissues with more or less atrophy and degeneration of the parenchyma. The resulting functional disturbance may be so slight as never to rise above the clinical horizon. The infected individual may never show any symptoms; indeed, he may never know that he has syphilis. I have no doubt that many syphilitics are wholly unaware of their infection. Just as soon, however, as the functional capacity of the affected organ becomes lowered to a point below that necessary for the general health of the organism clinical manifestations will appear. These will vary greatly according to the location and degree of the syphilitic lesions. In one case it may be the myocardium, in another the aorta, in another the pancreas, and so on. The symptoms may be those of a functional inadequacy of any one of the internal organs. In the absence of a history of syphilitic infection, or in the light of a supposedly old cured syphilis the syphilitic nature of these functional insufficiencies is not recognized.

Our conception of syphilis in the past has been almost wholly dermatological. It is still so today. Enter the case of syphilis, with primary sore on skin and mucous membrane lesions! He is treated as a dermatologic or syphilologic case until his primary sore and his skin and mucous membrane lesions have disappeared; and in the great

majority of cases they will usually promptly disappear, whether under the old mercurial treatment, or the modern salvarsan method. In a number of cases they will disappear just as promptly without any treatment. In the majority of cases when these lesions disappear the patient usually regards himself as cured, cannot be induced to continue treatment for a longer period, and finally disappears from the observation of the dermatologist or syphilologist. Years after he again becomes a patient, most frequently of the internist, but also frequently of the neurologist or psychiatrist. To these he comes with cardio-vascular renal disease, angina pectoris, aortic aneurism, diabetes, nephritis, impotency, vague gastro-intestinal symptoms, headache, early paresis or tabes, pernicious anemia, and many other conditions for which a syphilitic etiology is not suspected, and the true nature of the condition not recognized.

Such was the clinical material in the first group of autopsies studied by me. Forty-one cases out of 148 autopsies showed on microscopic examination the characteristic lesions of syphilitic inflammation, and in the majority of these cases the spirochetes of syphilis were demonstrated in these lesions. In only five of these cases was there a clinically active syphilis; in eleven there was a history of old "cured" syphilis; in twenty-five cases there was no clinical suspicion of the existence of syphilis. The clinical diagnoses in these twenty-five cases were:

Enlarged prostate	3	Diabetes	2
Cancer of stomach.....	3	Carcinoma of uterus.....	1
Tumor of intestine.....	1	Tuberculosis	1
Cystadenoma of ovary.....	1	Arsenical poisoning	1
Chloroma	1	Arthritis deformans	1
Dementia	1	Pernicious anemia	1
Myocardial insufficiency.....	2	Peritonitis	1
Chronic valvular lesion.....	2	Undiagnosed	1
Alcoholic cirrhosis.....	2		

In all of these forty-one cases the same essential pathology was found. In all the heart, aorta and pancreas showed active minute inflammatory foci, with healing, leading to fibrosis, and with parenchymatous atrophy and degeneration. In all the male cases the testes showed similar lesions. Likewise the adrenals showed almost constantly similar lesions. These organs alone have been thoroughly studied. I have not yet been able to make any study of syphilitic changes in lung, spleen, kidney, gastro-intestinal tract or nervous system; but in the routine examination of sections from these organs similar syphilitic lesions have been found in some of the cases. We

have also found similar lesions in the meninges, periosteum, in the mesentery and retroperitoneal tissues. From this original group of forty-one cases the study has been extended to over a hundred and fifty cases of latent syphilis, as far as the heart, aorta, pancreas, adrenals and testes are concerned.

In all of these cases the pathological lesions of old active and latent, recognized or unrecognized syphilis are the same, as will be seen from the microphotographs shown upon the screen. To sum these up briefly, the common pathological lesion produced by the *Spirochaeta pallida* is a minute localized interstitial infiltration of lymphocytes and plasma-cells, in a semi-fluid or myxomatous intercellular substance, with a fibroblastic proliferation leading to fibrosis. As the lesions heal, the connective-tissue becomes hyaline. The inflammatory infiltrations vary from very small groups or cords of cells to larger areas visible to the naked eye. Only rarely do they take on the characteristics of gummata. The gumma is a rare occurrence in the pathology of syphilis. Yet almost all of the statements in our current text-books of internal medicine as to the frequency of syphilis of the viscera are based wholly upon observations as to the frequency of gumma of these organs. Syphilis of the myocardium is rare because gumma of the heart is rare; syphilis of the pancreas is rare, because gumma of the pancreas is rare, and so on. The contrary is proved by the demonstration that these minute infiltrations and resulting fibrosis are due to localizations of the spirochete. These lesions constitute the essential pathology of syphilitic infection. As long as the affected area is still more cellular and less fibrous than normal connective tissue, spirochetes may be demonstrated in the lesion; but as it heals and becomes hyaline, they disappear. The number of spirochetes may be very great in the younger, more active lesions; in the older ones they are usually found in small numbers. The final result of these small syphilitic infiltrations and proliferations in the myocardium is the fibroid heart with its attendant clinical manifestations of angina, myocardial insufficiency, etc. The part of the heart wall most frequently involved is the left ventricular wall anteriorly, just above the apex, the adjacent portion of the septum, and the posterior wall of the left ventricle.

Similar lymphocyte and plasma-cell infiltra-

tions occur in the wall of the aorta, in the adventitia and muscle coat, along the walls of the vasa vasorum. The small arteries of the aortic wall show obliteration; the most marked areas of infiltration are about the veins. In adult syphilis I have never found spirochetes localized in the intima of the aorta. The final result of these changes is the gradual degeneration and fibrosis of the intima, proceeding outwards; an arteriosclerosis that cannot histologically be differentiated from aortic sclerosis due to any other cause. The active lesions should always be sought in the middle and outer coats of the vessel.

Precisely similar lesions occur in the wall of the pulmonary artery. Aneurism of the vessel and its branches may result from syphilitic disease as in the case of the aorta.

In the pancreas of the individual who has latent syphilis, careful search will always show the presence of small areas of interstitial inflammation, characterized by lymphocytic and plasma-cell infiltrations, fibroblastic proliferations, and eventually fibrosis. These inflammations may be diffuse, or scattered; small and insignificant, or more extensive. In diabetic and non-diabetic cases they may be equally very marked. Diminution in number of the islands of Langerhans apparently occurs in all cases of syphilis, and frequently the fibrosis of these islands is very marked, as in some of the diabetic cases. Progressive atrophy of the acini, fatty infiltration, sclerosis of the vessels, and regenerative new-formation of acini from the epithelium of the tubules characterize the pancreatic changes.

In the adrenals small infiltrations of plasma-cells and lymphocytes, thickening of the capsule, sclerosis of the vessels, and excessive lipoidosis of the cortex are found to some extent in all of the syphilitic cases examined. Likewise the testes of all syphilitics examined show a more or less marked intertubular infiltration of plasma cells and lymphocytes, proliferation of the stroma, hyaline change in the basement membrane of the tubules, with atrophy of the germinal epithelium and aspermatogenesis. These changes may be slight and focal; or they may be extensive and diffuse involving the entire organ. The latter may preserve its normal shape, size and consistence.

In the liver about the portal vessels, in the root of the mesentery, in the prevertebral tissues, and elsewhere in the body of the syphilitic there

may be found about the blood vessels similar small collections of lymphocytes and plasma cells with slight fibroblastic proliferation, and a progressive fibrosis and sclerosis.

The general pathology of the unsuspected case of syphilis is precisely that found in the recognized case. The paretic and tabetic show precisely the same general pathology. It is very probable that the thorough examination microscopically of the central nervous system will show in all cases of syphilis similar lesions in brain and cord. In a few cases in which I have made routine examinations of these tissues small perivascular infiltrations of lymphocytes and plasma cells have been met with in the brain and cord; that is, non-tabetic and non-paretic cases of syphilis may show small and scattered pathological changes identical with those found to a more marked extent in tabes and paresis. In the latter the changes are so marked that functional insufficiency arises and the clinical symptoms of paresis and tabes rise to the surface; in the former the functional inadequacy does not become manifest.

Such is the general pathology of the spirochete carrier. In all of the cases examined the mildness of the infection, and the tendency of the slight lesions to ultimate healing is very striking. The spirochetes are not very injurious in their action upon the tissues. It is a symbiosis—a partnership in which the human organism obtains immunity—relative immunity—at a certain price, and sooner or later must pay the price in the premature failure or loss of function resulting from the progressive slight injuries extending over periods of years. The important thing is that absolute healing—absolute disappearance of the organisms and complete healing of the inflammatory foci—does not seem to be reached. The syphilitic remains a spirochete carrier to the end of his days, as far as our present knowledge goes. This persistence of the organism may be in part the result of the failure of our therapeutic methods; it may be also the result of the biologic relationship established between the spirochete and the human body through long ages of mutual antagonism and defense.

In conclusion, the importance of this for internal medicine is evident. The internist must recognize syphilis as a possible etiological agent in many internal affections—cardiovascular—renal conditions, myocardial insufficiency, arterio-

sclerosis, diabetes, adrenal insufficiency, gastro-intestinal affections, etc.—for which today a syphilitic etiology is not generally suspected. The general practitioner has not recognized the clinical importance of syphilis—latent, apparently cured syphilis. Such cases coming to him are not diagnosed as syphilis; the death certificates give “heart disease,” etc., as the cause of death. They should be recognized and given their proper name. The older clinicians of twenty-five and thirty years emphasized the importance of latent syphilis in internal medicine in a way that has apparently been forgotten in recent years.

Of the syphilis about us, latent and unrecognized, the greater part is probably congenital and non-venereal in origin. Medicine has yet to learn that syphilis is a family disease. One case of venereal syphilis may produce ten to twenty non-venereal cases. If the disasters of innocently acquired syphilis in the medical profession alone were fully revealed the shock would be great. Today we are still reaping the venereal harvest of the Civil and Spanish-American wars; and the next generation will be reaping a still greater harvest of disease and death if this country actually enters the conflict abroad, if we do not take most vigorous action toward prevention. Such preventive methods must include the emphasis of continence as the only safe method. In the British and Canadian armies the failure to meet this situation from any other standpoint than that of personal prophylaxis has been a disastrous failure. Prophylactic medical methods alone have led to the most frightful incidence of venereal diseases in these forces. I was personally told last winter by a military officer of high rank in the Canadian forces that of the Canadian soldiers returning up to a certain period, ninety per cent came back with syphilis. A medical officer recently returned from England told me of one division of troops of twelve hundred men in a camp in England. At the end of six months, before ever reaching the trenches eight hundred and forty-two of the twelve hundred were said to have contracted syphilis; and yet this medical officer said “We did everything possible for them in the way of personal prophylaxis.” Think of the cases of innocent syphilis that will follow this war when the syphilitic soldier returns to civil life and passes the disease on to others, his

wife and children! For generations we shall be paying the cost of this infection alone!

As we enter this war we should do so with a higher and more effective ideal of prevention than that of medical prophylaxis. The young men who go into the struggle should be given a better chance—they should be thoroughly instructed in the meaning of venereal disease and in the physiology of continence. I am glad to see that the Council of National Defense has already taken constructive steps in this direction and that Secretary Baker has appointed a special commission that will attempt to attack this great menace from other standpoints than that of medical prophylaxis.

Just here lies the medical man's greatest responsibility. The medical officer who will advocate a higher morality, who will show the possibilities of a biologically clean life is going to render a greater service to his country than the medical man who will tell the young men in his company that “it can be made safe.”

MEDICAL LEGISLATION IN ILLINOIS.*

C. ST. CLAIR DRAKE, M. D.

SPRINGFIELD, ILL.

In the forty-ninth general assembly of two years ago, and in the fiftieth general assembly, which is now in session, there has been noticed a very remarkable disposition to give favorable consideration to measures approved and supported by the medical profession. The forty-ninth general assembly is credited with having enacted more salutary medical and social laws than had been passed during the preceding quarter of a century, and more important laws of this character than had ever been enacted at a single session of a legislature in any state in the Union. Some of these new laws were absolutely basic and fundamental — foundation measures without which satisfactory progress was impossible.

The fiftieth general assembly, not to be outdone by its predecessor, will be credited with laws quite as important if not so numerous.

Before beginning the discussion of this more recent legislation, I should like to offer the suggestion that, at this time there should come some recognition from the rank and file of the

*Read before Section on Public Health and Hygiene, Illinois State Medical Society, May 9, 1917, at Bloomington.

medical profession of the attitude of the members of the general assembly during the past two sessions. It is not uncommon, on coming in contact with the individual members, to hear the comment, perhaps not unwarranted, that the physicians among their constituents have been a little too ready to protest and criticise when bad laws are passed; but singularly silent when good and favorable acts have been enacted. Perhaps a word of appreciation at this time will aid in perpetuating that friendly relationship which has been so conspicuous during the past two years.

The excellent laws passed by the forty-ninth general assembly are familiar to all of you. The past two years their excellence has been demonstrated through their satisfactory operation. The birth and death act, the amendment to the Medical Practice Act giving the State Board of Health jurisdiction over all medical licenses, the creation of a system of full-time district health officers, the bureau of sanitary engineering, the state epidemiologist, the county tuberculosis sanatorium law—these and other progressive measures stand to the credit of the legislature of 1915.

The present general assembly will be remembered throughout generations, not only by the medical profession, but by the rank and file of the people, on account of the passage of the Civil Administrative Code, commonly known as Governor Lowden's consolidation law. A prominent public official of Massachusetts, after looking carefully over this measure, declared that through planning and successfully guiding it through the general assembly, the governor had caused Illinois to progress a quarter of a century and had placed the state in advance of any other state in the machinery for efficient and economical government.

The effect of the Civil Administrative Code upon the medical part of the state government is so radical that it is almost revolutionary. As is known to you all, the State Board of Health has served the people in a dual capacity: as a health organization and as a bureau for the examination and licensure of physicians, other practitioners, midwives and embalmers. Within recent years the functions of examination and licensure have come to occupy fully three-fourths of the time and attention of the members, the officers and the employes of the board, and public health administration has been compelled to suffer.

When the consolidation bill was first under

consideration, even those who believed that health would be accorded one of the major divisions of state government were disposed to believe that the health department would be compelled to continue as an examining and licensing board and it was anticipated that, in addition to the licensure of physicians, other practitioners, midwives and embalmers, the board would be called upon to examine applicants for license in other professions and trades more or less closely affiliated with medicine. These included dentists, pharmacists, nurses, optometrists and barbers.

The far-sightedness and wisdom of the governor and of the general assembly were demonstrated when, as finally enacted, the newly-created Department of Public Health was found to have been relieved of all examination and licensure. The examination of physicians and such other examinations as were formerly carried out by the State Board of Health were relegated to another division of the state government known as the Department of Registration and Education. For the first time in her history, Illinois found herself with a health department pure and simple, unencumbered and unembarrassed by a heavy burden of extra duties.

The State Department of Public Health, as created by the Civil Administrative Code, is charged with all of the sanitary and public health duties previously performed by the State Board of Health, but with greatly increased specific power and authority.

The State Board of Health is abolished and the department is placed under the supervision of the director of public health. The law also provides for the services of an assistant director of public health. Both of these officials are appointed by the governor; but the law is specific in designating their qualifications and experience.

The governor is also authorized to appoint a board of public health advisors, consisting of five persons, who are to study the needs of the department and to make suggestions, either at the request of the director or on their own initiative, which suggestions must be given consideration. Suggestions for the good of the department may be made to the governor or to the general assembly either with or without invitation, and the board is empowered to make investigations of the department at any time.

The law does not do away with any of the stronger features of the old State Board of

Health machinery; but it makes newer and more efficient machinery possible. Under this act, the district medical health officers of the state will be retained and increased in number, while at Springfield there will be created bureaus covering every phase of sanitary and public health work, each under the direction of an expert in his line and rendering the work of the district health officers infinitely more effective. While not specified in the law, the plan of operation of the state department of public health contemplates an executive bureau; a bureau of communicable diseases; a bureau of tuberculosis; a bureau of child hygiene and public health nursing; a bureau of laboratories; a bureau of sanitary engineering; a bureau of surveys and rural hygiene; a bureau of hotel and lodging house inspection; a bureau of vital statistics, and a bureau of public health instruction.

The department of registration and education, to which is now relegated the examination and licensure of physicians, other practitioners, midwives and embalmers, is under the direction of the director of registration and education and the law also provides for the appointment of an assistant director and a superintendent of registration. This department will have three major bureaus: a bureau of registration; a bureau of natural resources and conservation, and a bureau of education. The bureau of registration will have to do not only with the licensing of physicians, but will also examine veterinarians, architects, structural engineers, pharmacists, dentists, nurses, optometrists and barbers. Under the bureau of natural resources and conservation will come the state water survey, the state museum of natural history, the state laboratory of natural history, the state geological survey and the state entomologist, while the bureau of education will have supervision over the state normal schools.

In examining and licensing applicants of the various professions and trades and in establishing the standards of professional schools, the law provides for the selection from time to time of persons representing the trades and professions interested who will serve in the capacity of an advisory committee.

In the performance of the functions of examination formerly carried out by the state board of health, the law says:

For the medical practitioners, embalmers and midwives, five persons, all of whom shall be re-

putable physicians licensed to practice medicine and surgery in this state, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested directly or indirectly, in any medical college or medical institution. For the purpose of preparing questions and rating papers on practice peculiar to any school, graduates of which may be candidates for registration or license, the director may designate additional examiners whenever occasion requires.

This means, of course, that the five men who will be selected to supervise the education, examination and licensure of all persons practicing the art of healing in any form, must be licensed to practice medicine and surgery in all their branches, although the director is authorized to select representatives of those schools having peculiar principles or methods of practice, such as the various forms of drugless healing, to prepare questions and grade papers on those subjects dealing with their particular form of practice.

It is quite impossible at this time to go into detail in regard to the numerous changes in public health administration and in the examination and licensure of physicians brought about by the passage of the Civil Administrative Code; but the general outline which I have given you will indicate that these changes are as sweeping as they are beneficial.

But in all probability, the fiftieth general assembly will leave behind it other definite changes in the laws affecting the practice of medicine through the pending amendment to the Medical Practice Act.

While definite changes in the Medical Act have been desired by all who have been interested in its operation and enforcement, the movement for this amendment was precipitated by an attempt at the passage of an amendment drawn in the interest of osteopathic practitioners. This proposed amendment contained provisions so objectionable that a hurried conference was called between representatives of the Illinois State Medical Society and the State Board of Health. As a result of this conference it was decided to seek at once the passage of a law which would afford the changes long regarded as essential and at the same time give to the drugless healers the recognition to which they are entitled. The bill for the act was drawn by Mr. Charles G. Woodward, who had won national reputation through having drafted the Civil Administrative Code, and who is perhaps more familiar with medical

legislation than any other Illinois lawyer, on account of his experience as assistant attorney-general assigned to the legal service of the state board of health.

All of the stronger features of the old Medical Practice Act are retained; but its numerous defects are remedied.

The newly-created department of registration and education is empowered to establish standards of preliminary and professional education for physicians, other practitioners and midwives.

For physicians and drugless healers the requirement of preliminary education is the same, the minimum being graduation from an approved high school with four-year course. Heretofore there had been no requirement of either preliminary nor professional education for the so-called "other practitioners"—that is for those licensed to practice the art of healing without the external or internal use of drugs nor the employment of operative surgery.

In the matter of professional educational requirements the law places a minimum, but permits higher standards to be established by the department of registration and education.

For physicians the new Medical Practice Act will make the following minimum requirement for all who matriculate in medical schools after July 1, 1917: One year collegiate education to be taken either in a recognized college or university or in the medical school; four years in a recognized medical school; one year of twelve months as an interne in an approved hospital.

The educational requirements for drugless healers, for all matriculating after July 1, 1917, in addition to graduation from an approved high school, will be a course of four years of at least eight months each in a professional school which has been approved by the department of registration and education.

Midwives will be required to have a preliminary education equivalent to graduation from a recognized graded school and one year in a college of midwifery in good standing.

The bill also provides for the extension of the privilege of licensure through reciprocity with other states to all practitioners—a feature which will remedy a condition which has always been unjust to the older physicians of the state.

It was the original intention of the osteopathic practitioners to seek the passage of a law which would give them the right to practice minor sur-

gery, limited materia medica and obstetrics, and while they were not successful in this, there are certain features in the bill which seem quite satisfactory to them. The section which especially meets their approval provides that graduates of a particular school of practice shall be specially examined in the theories and practices of their individual school and that they be licensed to practice only in accordance with the tenets of that school. That means that osteopaths are examined and licensed to practice as osteopaths and that those examined as chiropractors or the members of other cults are not permitted to hold themselves out as practicing osteopathy.

The contentions for the right to practice minor surgery, obstetrics and to employ drugs to a limited extent was sharply fought in the judiciary committee and the sub-committee of the house, in which the demands of the osteopaths were finally met with these concessions:

The right to practice minor surgery was denied.

The limited use of drugs was conceded; but only to the point of the employment of local antiseptics for the prevention of the spread of communicable disease as set forth in the rules of the state board of health and the employment of antidotes in emergencies due to acute poisoning.

Graduates of schools of osteopathy in which obstetrics is taught are declared eligible to the examination for licensure as midwives with the provision that licensure in midwifery may be indicated on the certificate given the applicant showing his licensure as a drugless healer. It will be borne in mind that midwifery is defined by law as attendance upon cases of normal labor.

After the hearing in the judiciary committee, the bill was reported out as a measure agreeable to both contending sides and it has been advanced to third reading in the house without an opposing vote. During the present week, in my opinion, it will have passed the house and will go over to the Senate, where there is no reason to anticipate opposition.

A gentleman, expert in medical legislation, who carefully reviewed this bill, declared it the best registration act now operative in the United States.

In addition to the amendment of the Medical Practice Act there are three exceedingly meritorious bills before the general assembly, all of which are likely to be enacted and all of which

have an important bearing upon the sanitary and public health administration of the state.

An amendment to the military and naval code, which is exceedingly important at this time, gives the newly created state department of health jurisdiction over territory within one-half mile of any military or mobilization camp, and authorizes the department of health to abate any nuisance or any offensive condition at the expense of the property holder, if the condition is found to exist on private grounds, or at the expense of the city, village or township if the nuisance be maintained on public property.

In the mobilization of the large bodies of troops that will go out from Illinois during the present war, this law, if enacted, will afford a degree of health protection not possible in the past. The most rigid camp sanitation is futile if the breeding places of flies and mosquitoes and other insanitary conditions are permitted to exist just beyond the limit of the military reservation.

The desirable end, that all sections of the state shall be under the supervision of full time competent health officers, is approached through a bill for an act to authorize the organization of public health districts to be made up of a single township or two or more adjacent townships in counties under township organization, or any road district or two or more road districts in counties not under township organization. The bill also provides that townships or road districts may combine with adjacent townships or road districts situated in other counties to constitute public health districts.

Upon petition of at least 5 per cent. of the voters in township or road district, filed at least thirty days before the regular township election, the proposition of establishing a health district may be submitted to a vote of the people.

In counties not under township organization, adopting this measure, the county commissioners constitute the board of health for each public health district. In counties under township organization, if the district consists of but a single township, the supervisor, assessor and town clerk constitute the board, while, if two or more adjacent towns unite, the supervisors of these towns, together with the chairman of the county board, shall constitute the board of health.

Among other powers these boards of health are authorized to levy an annual special tax not to exceed four mills on the dollar, to create a "pub-

lic health fund." It is the duty of the board to appoint a full time public health officer with a salary of not less than \$1,500 a year, to be selected from a list of eligibles supplied by the state department of health, such eligibles to be chosen by competitive examination. The law also requires the board of health, with the advice and approval of the health officer, to employ nurses, chemists, experts, clerks and assistants as the health officer may deem necessary and to provide offices, facilities, appliances and laboratories.

This law will make it possible for any progressive township or group of townships to employ a full-time medical health officer, community nurses and to establish an efficient department of health. This law was originally suggested by Dr. Gustav F. Ruediger, health officer of the cities of La Salle, Peru and Oglesby. After a conference between Dr. Ruediger and the state board of health, the measure was submitted to Mr. Woodward who drafted the bill as it now stands. This bill has passed the Senate and is now in the House.

Until such a bureau was made possible by the forty-ninth general assembly, the Illinois State Board of Health attempted to carry out sanitary supervision of the state without the services of a department of sanitary engineering, relying upon the courtesy of the state water survey and other departments for laboratory facilities and depending upon very vague general powers to bring about sanitary reforms.

When the bureau of sanitary engineering was created in 1915, it was found that its efficiency was materially reduced on account of a lack of specific and definite authority.

There is now in the general assembly, with every likelihood of passage, an amendment to the state board of health act giving the department of public health supervision over public water supplies and over the installation of sewerage systems. This law, if enacted, will give the department of public health control over the pollution of water ways, will prevent municipalities making unwise expenditures for water supplies and sewage disposal systems and yet does not unnecessarily invade the rights of local communities in the management and control of their water and sewer systems. Such a law was earnestly recommended by the United States public health service after a thorough investigation of public health administration in Illinois.

There are other measures of more or less im-

portance to the medical profession and to the public health now under consideration before the general assembly, but in the short period of time allotted to me today it is only possible for me to review those measures which are of paramount importance.

The fiftieth general assembly will not fall far short of the forty-ninth in the importance of medical legislation enacted and the members of both of these sessions of the general assembly merit the lasting gratitude of the medical profession for their contributions to medical, health and sanitary progress.

I cannot close these remarks without a word of commendation and gratitude for the services rendered by Dr. William L. Noble, the president of the Illinois Medical Society, in bending every effort for the passage of sound laws and to the legislative committee of the Illinois State Medical Society, whose local representative, Dr. Don W. Deal, has been indefatigable in urging the passage of these bills before the committees of the general assembly and tireless in arousing and sustaining the interest of the medical profession in their support of these excellent measures.

TIC DOULOUREUX

SOME CASE REPORTS

G. WILSE ROBINSON, M. D.

KANSAS CITY, MISSOURI

Of the various types of neuralgia those of the trigeminal nerve are the most distressing, and of the different forms of neuralgia of this nerve, the tic douloureux, or spasmodic epileptic—form neuralgia of Trousseau is to an extreme degree the most painful and disabling. The spasms of pain may be so severe in character and of such frequent occurrence as to seriously interfere with the taking of food by the patient. It matters not what the primary etiology may have been, after the condition has developed, a removal of the cause does not in the least modify the course of the neuralgia. It is useless to undertake to control this form of neuralgia by the administration of drugs. Profound opium narcosis may give temporary relief, even in the most severe cases, but if this drug is administered the habit is soon formed.

In order that the patient may be given relief it is necessary that some operative procedure be

done. The following operative measures are being used at the present time:

First, neurolytic injections. Of the substances used for the purpose of injecting the trigeminal nerve, I believe alcohol, 80 per cent or stronger, to be the only one worthy of our consideration. If the technique be proper, alcohol can be injected into the various branches of the nerve or even into the Gasserian ganglion with little pain, no shock and with absolute relief from the neuralgia for a period varying from twelve to twenty-four months if the nerve alone be injected, or the relief may be permanent if the cells of the ganglion be destroyed by the alcohol.

Second, neurotomy, or simple section of the nerve. I do not believe this method is very popular and certainly it is not practical. The cut ends of the nerve quickly reunite and the neuralgia soon recurs.

Neurexaresis or nerve evulsion after Theirsch has been substituted for neurotomy. This operation consists of tearing out the affected nerve from the base of the skull to its terminal ramifications. Even this generally gives but temporary relief and many prosopalgias which have been subjected to neurexaresis recur.

Removal of the Gasserian ganglion.

This operation was originated by Fedor Krause. He states that in sixteen years he has performed the operation sixty-four times and has had no recurrence of the neuralgia. But this operation is most severe and serious and can be performed with safety and success by few surgeons. Generally speaking, I believe it is an operation which is rarely justified. It is my opinion that the neurolytic injection method of treatment is far superior to any other form of treatment that is now or has been in use.

I believe the technique as practiced by Wilfred Harris of London to be the best.

To none of my patients do I give a general anesthetic. I use 5 per cent novocaine locally and they, one and all, tell me that the entire operation does not cause as much pain as one paroxysm of the neuralgia. I inject the supra-orbital branch in the supra-orbital notch. Alcohol should not be injected into the supra-orbital foramen, as it may enter the orbit and injure the optic nerve. The infra-orbital branch I inject in the infra-orbital foramen. The middle division of the nerve should be injected at the foramen rotundum. The needle should enter the cheek in front of the coro-

noid process of the lower jaw; the needle is pushed inward and upward until the external pterygoid plate is reached, it is then worked forward and slipped in front of the edge of this bone, is then pushed in five or six millimeters farther. The nerve is found at a depth of from five to five and one-half centimeters.

The third division of the nerve is injected at the foramen ovale. The needle enters the face at the lowest point of the zygomatic notch of the lower jaw, is pushed upwards and backwards to a depth of about four and one-half centimeters. After the nerve is entered and injected, if it is desired to inject the ganglion, the needle may be pushed through the foramen ovale for a distance of about nine millimeters. The alcohol should be injected into the ganglion very slowly. The cells of the ophthalmic division are situated more centrally and are last reached by the alcohol.

The anesthesia produced in the supra-orbital branch should not be profound, or ulcer of the cornea may follow. If one and a half cubic centimeters of alcohol be forced into the inferior division in the foramen ovale, a few drops at a time, a sufficient quantity may enter the ganglion to destroy the cells of the third and second divisions and, in part, those of the first division. I have found it good practice to do this in my cases. This will insure a more permanent relief than simply injecting the nerve.

For the purpose of making the injection, a needle with a short point should be used. It should have a good fitting obturator and should be pushed in detached from the syringe, the obturator is then removed so as to insure that the needle is not within a blood vessel. When the needle is in the vicinity of where the nerve is supposed to be, a search should be made for the nerve. If the patient complains of pain, a little novocaine solution should be injected and in a few minutes a few drops of alcohol. If the solution leaves the needle under considerable pressure, we are justified in suspecting that the nerve has been penetrated. After a few drops have been injected the area of distribution of the division which we are trying to inject should be tested. If there is evidence of a beginning anesthesia and analgesia over this area, we can safely assume that the alcohol is being injected within the nerve sheath. Alcohol injected around a nerve sheath does not cause an anesthesia and analgesia over its area of distribution, although the neuralgia

may be temporarily relieved. The injection is then continued a few drops at a time, the area being tested from time to time. If the anesthesia and analgesia still continue and progress until they are complete, after the proper amount is injected, the needle is removed and the patient is ready to return home.

The following cases are somewhat unusual in character:

Case 1. J. B. M., male, aged 62 years, consulted me January 3, 1916. Complaint: Spasmodic neuralgia involving the area of distribution of the second and third branches of the left trifacial nerve. The cause of neuralgia unknown. Duration, fifteen years. Paroxysms were most severe and of frequent occurrence, no pain in the interim; had pyorrhea, severe in character and of long duration. Had been unable to have teeth cleaned for several years, could not use tooth brush; all food taken for several months had been liquid and had to be taken warmed through a tube or by spoon through the right side of the mouth. Had had several injections in his face but after none of them were the lips or face numb. About a year ago he was in a hospital for a period of six weeks and four injections were made, the nature of which he did not understand. No numbness followed these injections, but the pain was relieved for a period of three months. January 3 an injection of novocaine followed by an injection of alcohol was made in the infra-orbital foramen. This was followed by anesthesia and analgesia of the upper lip and area of face supplied by this branch. January 4, one and one-half cubic centimeters of alcohol was slowly forced into the inferior division at the foramen ovale. After the operation there was total anesthesia and analgesia over the area of distribution of the second and third branches. Analgesia, but not anesthesia, over the supra-orbital branch. The left eye was destroyed by accident several years before, therefore no precautions were necessary following the injection. All pain was immediately relieved, patient did not go to bed, but walked away from the hospital shortly after the operation was finished. He lived in the country, but remained in town for about a week. He was able to eat anything that he desired and drink cold water freely. When last seen the anesthesia and analgesia were the same as immediately after the injection and the sensation of numbness continued.

Case 2. Mrs. L. D. C., female, aged 59 years, consulted me January 27, 1916. Complaint: Spasmodic neuralgia of right trigeminal involving all three divisions of the nerve. These attacks had also continued for a period of fifteen years. They were so severe and of such frequent occurrence that the patient had been unable to take any form of nourishment for a period of three days previous to consulting me and for years had lived almost entirely upon liquid nourishment. This patient, too, had had numerous injections made in the face, the nature of which she did not understand. After the injections there had been

a brief relief of the pain, but after none was there a sensation of numbness appreciated by the patient. I decided to first try an injection of the various divisions of the nerve. I made an injection of about one-half cubic centimeter of alcohol into the middle branch at the foramen rotundum. After this injection there was analgesia of the upper lip, but not anesthesia. I then caused my needle to enter the inferior branch at the foramen ovale. I decided that my best results would be obtained by injecting the ganglion. After I had forced in slowly one and one-half cubic centimeters of alcohol, the anesthesia and analgesia were complete over the area of distribution of the inferior and supra-orbital branches, but there was still not complete anesthesia over the area of distribution of the infra-orbital branch. The pain was immediately relieved in all divisions and in fifteen minutes after the operation was completed the patient sat up and ate a hearty meal. The patient remained in the hospital for three days; on the morning of the second day I made an injection into the infra-orbital foramen, as I was not satisfied because of the incomplete anesthesia over the area of distribution of this branch. After this injection was made, anesthesia and analgesia were complete and the patient returned to her home. After the operation there was slight weakness of the external rectus muscle of the right eye, giving a double vision for far objects. I am inclined to believe that I over-shot the second division with a little of my alcohol and it perhaps came in contact with the sixth nerve. Immediately after this patient returned home it was reported to me that the vision was very weak and seemed to be failing. A later report from the attending physician stated that this was not the case, the same report stated that the double vision had practically entirely disappeared, also that the patient was doing her own housework and had no pain at all, but was experiencing a sensation of numbness over the right side of the face and of coldness in the right lower jaw. I believe the idea of failing vision in this case was psychic, as she was told by a physician who undertook to relieve her of her neuralgia by an injection, that if an injection was made which would relieve the neuralgia that she would go blind.

Case 3. Mrs. A. G. K., aged 54 years. Complaint: Spasmodic neuralgia in left tongue and left lower lip. This patient consulted me February 9, 1916. The duration of the present attack was about one month. Had had an attack several years ago. In December, 1913, an operation was done at Honolulu; at that time had had the neuralgia for a period of two years. According to the patient's statement, the nerve was cut and the inferior dental canal plugged. There was visible a considerable scar around the angle of the lower jaw. Following this operation there was complete relief for a period of two years. Upon examination I found the epicritic sense subnormal, but the protopathic sense very good over the lower lip, side of tongue and gums. I injected the inferior division at the foramen ovale. This division alone was involved in the neuralgia. I did not undertake to destroy the

ganglion, but forced enough alcohol in to give me slight analgesia of the upper lip with complete anesthesia and analgesia over the auriculo-temporal branch. This case illustrates quite well the futility of serious cutting operations. The former operation left a considerable scar and even though the inferior dental canal was plugged there was reconstruction of the nerve, with a recurrence of the neuralgia. This patient returned to her home entirely relieved February 11.

Case 4. Mrs. S. G., aged 70 years. Complaint: Spasmodic neuralgia of the right auriculo-temporal branch of the third division of the trigeminal. The pain was limited entirely to this branch. This condition was complicated with a Menieres disease of the right side. The attacks of pain were of frequent occurrence, severe in character with no pain in the interim. The duration of the neuralgia was about three months. Injection was made of the inferior division in the foramen ovale February 21, 1916. I injected a considerable quantity of alcohol, but was unable to get complete anesthesia and analgesia over the area of distribution. After the injection was discontinued I examined the alcohol and found that it was only about 50 per cent strength. This strength will not destroy nerve tissue. The pains recurred in the lower lip. Another injection was made with alcohol of proper strength February 24. There had been some symptoms causing me to suspect that the middle division was going to be involved in the neuralgic process and I decided to force some of the alcohol into the Gasserian ganglion.

This I did until there was complete anesthesia and analgesia over the area of distribution of the inferior division; analgesia and greatly reduced anesthesia over the area of distribution of the middle division and reduced anesthesia and analgesia over the supra-orbital branch. After the second injection all pains ceased. Patient left hospital the following day.

Case 5. Mrs. A., aged 55 years. Complaint: Spasmodic type of neuralgia involving the second and third divisions of the trigeminal on the left side. Etiology not determined, duration three months; very severe in character, several attacks having occurred in which one paroxysm of pain followed another so rapidly as to seem to almost merge into one continuous spasm over a period of more than two hours. Had taken nothing but liquid food for several weeks; had not taken a sufficient amount of that. Upon examination, I found the entire area of distribution of the right trigeminal to be anesthetic and analgesic. Upon inquiry learned that about five years ago the right side of the face began feeling numb and this slowly progressed until all sensation was lost. The only other symptom present at this time was headache of severe character. No other paralysis occurred and no symptoms of involvement of other cranial nerves. I concluded that this was due to some degenerative condition of the Gasserian ganglion. The attacks of neuralgia were so severe as to interfere with the nutrition of the patient, and it was necessary that she have relief. An injection was made February 27,

1916. After the needle penetrated the inferior division in the foramen ovale, it was pushed in a few millimeters farther; one and one-half cubic centimeters of alcohol was slowly injected. After the first few drops anesthesia and analgesia were found over the lower lip and tongue. After the final alcohol was injected there was analgesia and partial anesthesia over the area of distribution of the supra-orbital branch. The analgesia and anesthesia were complete over the area of distribution of the second and third divisions. The conjunctiva of the left eye was found to be anesthetic. A few drops of sterile castor oil were dropped into the eye and the eye closed for twenty-four hours. A disagreeable feature following this injection was the inability of the patient to elevate the inferior maxilla. The paralysis of the right trigeminal which had preceded the injection paralyzed the muscles of mastication on the right side. The injection into the inferior division on the left side paralyzed the muscles of mastication on the left, giving a bi-lateral paralysis of the elevator muscles of the inferior maxilla. For this reason it has been necessary to continue the patient on liquid diet. I believe some power will be regained on the left so that this symptom will perhaps not be permanent. This patient has had no paroxysms of pain since the injection was made.

Conclusions: In my opinion it is useless to undertake to relieve a patient of tic douloureux by the administration of drugs. All analgesics, if continued over any considerable period of time are injurious to the general health of the patient and habit forming in character. Cutting operations are disfiguring, some of them are severe and serious in nature. None excepting removal of the Gasserian ganglion are assuredly permanent in their results. This operation is so very serious that it is rarely, if ever, justified. Injection of alcohol within the various divisions of the nerve or within the ganglion, if the technique be proper, can be made without disfiguring the patient, without shock and with little discomfort and the result will be an entire relief of the neuralgia for a period of twelve months or longer. If the neuralgia recurs after the reconstruction of the nerve, another injection can easily be made.

937 Rialto Building.

The truest mark of being born with great qualities is being born without envy.

Nothing is worth doing in the work of life that is without details that are dull.

The way to gain a good reputation is to endeavor to be what you desire to appear.

ALCOHOLISM AS OBSERVED AT THE SCELETH HOSPITAL OF THE HOUSE OF CORRECTION WITH AUTOPSY FINDINGS.

CHARLES E. SCELETH, M. D.

CHICAGO.

I wish to explain to you gentlemen that our worthy president, Dr. Augustus A. O'Neill, is the one person responsible for my appearing before you tonight. About three weeks ago Dr. O'Neill, Mr. Whitman and I appeared before the Judiciary Committee at Springfield in favor of the Bruce Bill, which recommends that the sale of alcoholic liquors containing over 10 per cent alcohol be prohibited. I had never made a public speech in my life and was almost scared to death, but they had Mr. Whitman introduce me and Dr. O'Neill backed me up and I got by. But it was very much like your first dive in swimming. I was very much pleased with myself and had visions of myself as a second Chauncey Depew but was perfectly willing to consider the swimming season closed.

Four days ago Dr. O'Neill called on 'phone and wanted to know if I had received his letter about addressing the Chicago Medical Society next Wednesday evening, and when I explained that I had not, he said that he counted on me and to just tell you gentlemen what I said down in Springfield. So if you have to listen to a half prepared paper delivered by an amateur speaker it is Dr. O'Neill's fault.

During the past seventeen years over 40,000 cases of chronic alcoholism have passed through our institution for treatment. This does not include the acute alcoholic intoxications occurring in cases that are not complicated by chronic alcoholism.

At the present time we are treating between 500 and 600 hospital cases a month with a traveling population of about 25 a day; 85 per cent of this number are alcoholic; and 75 per cent of these are addicted to the use of distilled liquor. Our mortality averages about 200 deaths a year.

Because of the limited information regarding the persons making up the greater part of these patients and for the reason that many of the bodies of persons supposedly drunk are found either during life or after death, to have skull fractures and other internal injuries, these

deaths have automatically become a subject of medical legal inquiry and postmortem examinations.

For a number of years I witnessed or took part in many of these examinations and since that time information regarding the condition found has become a routine part of our record keeping. As is widely known the alterations produced by alcohol containing beverages made by fermenting grains or malting processes, or by other processes of fermentation, such as wine manufacture, are different from the changes found where people die of the alcohol produced by distillation.

In the first group the changes are mostly in the trunk organs, and are largely associated with accumulation of fat, or the formation of adipose tissue. The alcohol containing beverages made by distillation, especially whiskey, on the other hand, produce changes in the central nervous system, principally a degeneration, an atrophy of the brain, with a widening of the sulci and narrowing of the convolutions, and a dilatation of the ventricles. This atrophy of the brain is more pronounced in the frontal lobes where the higher centers are located, where a man's sense of right and wrong exists, and this is the reason for the marked moral deterioration found in the chronic alcoholic.

In an article by Dr. Biefeld and myself in the *American Journal of the Medical Sciences* appearing June, 1915, on Cerebral Edema (Wet Brain) in Chronic Alcoholism, we have included a statement by Dr. E. R. LeCount regarding changes in the brain found in persons dying with delirium tremens in our institution.

I believe that alcohol today in the form of distilled liquor used as a beverage is responsible for the reduction of more brain capacity than all other reasons combined. Chronic alcoholic intoxication depends upon a chronic degenerative process in the central nervous system, and is characterized by a gradually progressive dementia with defective memory, faulty judgment, moral deterioration, occasional delusions and hallucinations, with a diminished capacity for work and various nervous symptoms.

Every day we have numerous requests for mental examinations where the relatives of the patient believe him to be insane. The history is almost invariably the same; the story of a good parent who became addicted to distilled

liquors; who has lost all affection for his family, who has become indifferent to the tears of his children, has little interest in their welfare, disregards all responsibility, is quarrelsome and abusive, destructive of clothing and furniture, and liable to make dangerous assaults—especially during acute alcoholic exacerbations—become entirely unstable, prefers the saloon to home, engages in his usual occupation only for a few days or hours at a time, offering as an excuse that he is physically unfit for continued labor. He leaves the support of the family to the wife and children, whom he browbeats for enough money to keep him in liquor; develops a gradual failure of memory; important facts are forgotten; defects of judgment and memory are a fertile soil for the development of numerous more or less pronounced delusions. These delusions show a striking lack of judgment and often ideas of injury which render the alcoholic quarrelsome, and bring on dangerous assaults which end in the jail or prison.

Unfortunately chronic alcoholism is not recognized in our State as insanity. Since November, 1912, a mental clinic has been conducted every Wednesday by Dr. Sidney Kuh, who no doubt will develop this phase of the question.

As well known, alcohol is not a beverage or food, and I do not think much of it as a medicinal remedy. It is a toxic narcotic and anesthetic. The toxicity of alcoholic beverages increases directly with the amount of alcohol they contain; also alcoholic psychoses are rarely caused by fermented liquors.

I have never seen a case of delirium tremens where fermented liquors only were used. It has always been caused by distilled liquors, principally whiskey.

Whatever the explanation is, whether due to the soporific action of malted or brewed drinks or some other explanation, the fact remains that the records of the police courts and information furnished by the police officials nearly always are concerned with the drinking of distilled liquors. There are more quarrels and violence in a gallon of whiskey than in a barrel of beer. The man who is over-worked, burning the candle at both ends, who is tired and needs a rest, too often resorts to whiskey to brace him up, and the results are often disastrous; while if he drank two or three steins of beer he would probably fall asleep and get the rest he needed.

Just a word in regard to the fellow who is sure John Barleycorn will never get him. Among our confirmed alcoholics we do not find one in a hundred who deliberately started out to become a drunkard. They always thought they could whip John Barleycorn and many of them still tell you that they can leave it alone.

Whether the saloons should be abolished or such measures as the Bruce Bill be adopted will remain, of course, for our legislators to decide. But no matter what measures are taken the manufacture and sales of these poison-containing drinks to a laity so generally ignorant of the harm they may produce and the real anatomic changes, is certain to be restricted here as elsewhere in the near future. I cannot estimate the financial cost of the chronic alcoholic to society, but, if the government absolutely prohibited the manufacture of distilled liquors, I believe the work of our police department and municipal courts would be cut in half, and that the population of our police stations, work-houses, prisons and reformatories would be reduced 50 per cent; our asylum 25 per cent, and the poverty and misery of the world 75 per cent.

SOME EXPERIENCES WITH RADIUM.*

C. W. HANFORD, M. D.,
CHICAGO, ILL.

It is not the purpose of this paper to give a statistical report of cases treated with radium, as such reports have been supplied by other writers. Therefore, the writer will confine himself to his individual experience with radium in various malignant and benign conditions, both superficial and deep.

It is quite necessary to possess a clear idea of the physics of radium that we may intelligently screen it when applying it to various surfaces and tissues. But a brief mention of the three rays coming from radium and certain general laws regarding screening and length of exposure will be sufficient at this time.

The three rays are named alpha, beta and gamma. The alpha rays do not interest us therapeutically, as they are absorbed by the glass and metal containers of radium. The primary beta rays are specific in action and if directed against

tissue will produce burns, the depth of which will be according to the length of exposure. To prevent these burns we use various metals and rubber. Lead, brass and silver are the metals usually employed. I wish to correct an impression that I find quite prevalent, viz., that radium acts because of its caustic properties. Nothing is farther from the facts. We possess many agents that are vastly superior as caustics and in applying radium we endeavor to escape the caustic action of the hard beta rays. The gamma rays are very penetrating; four inches of lead are required to absorb them. The hard beta rays can be entirely absorbed by interposing three millimeters of lead between the radium and the surface irradiated. To absorb the secondary or soft beta rays we add two millimeters of pure rubber.

Unlike the burns produced by over exposure to x-rays the beta ray burns heal readily in the course of two or three weeks. We have always felt there is a similarity between x-rays and radium rays, but there must be some difference because of the fact that radium will stop the further inroads of x-ray burns and will cure what are known as "x-ray cancers."

To return for a moment to the subject of screening: it is the rule to employ thick screens for long irradiations and thin screens for short applications.

That cancer of the basal cell type is actually cured by the proper use of radium has been demonstrated time and again. I have seen cases where the involved area was four to five inches in diameter, entirely healed with scarcely a scar resulting. And it is important to consider this preservation of the cosmetic appearance, especially in the treatment of face lesions. The preserving of contour is one of the important points in favor of radium over the various electric "cooking" methods, for radium does not take away tissue, but simply fills the space occupied by the young cancer cells with healthy connective tissue.

Skin.—The benign skin affections where radium is of paramount value are keloids, moles, chronic eczema, rhinophyma, angioma, pruritus, lupus vulgaris and port wine stain. The type of port wine stain affected favorably by radium blanches on pressure. After radium has been employed in the above conditions there usually remains for a time a slight difference in color between the part irradiated and the surrounding

*Read at the meeting of the Marshall-Putnam County Medical Society, May 1, 1917.

surface, but time gradually brings about a uniform appearance.

The time of exposure for all surface lesions should be short, from twenty minutes to one and a half hours. If used for the maximum period screening must be employed, otherwise marked reaction will follow. While this heavy reaction is not dangerous, yet it should be avoided when it serves no purpose. There are times when the patient is pressed for time and we are obliged to hurry the treatment, in which case the screening may be light (1-10 mm. of aluminum). The patient should always be told that there will be a very decided redness in a few days and possibly some vesicles along the margin. It is never advisable, however, to hurry a treatment, as there is always the right way and the wrong way and much more satisfactory results can be obtained by taking plenty of time.

Epitheliomas and rodent ulcers react very quickly to radium. Usually three or four applications are sufficient. Epitheliomas the size of a half dollar will disappear in from a month to six weeks, leaving a surface slightly glazed if on the lip. If on the skin the site of the lesion will be a little lighter in color.

When we come to a study of cancer of the deeper tissues there are many things to be considered before giving a prognosis. Some years ago when radium was first used in carcinoma of the uterus, we were led to believe that a cure had at last been found, inasmuch as the local lesion would disappear and the patient would gain in weight and feel perfectly well. But some of these cases relapsed and eventually died from an extension of the malignant process. Therefore, it was deemed wise to use the term, "clinical cure," no matter how favorable the case appeared after the radium treatments. There are cases on record that have remained well for five years and might be justly classed as definitely cured, but it is probably best to err on the side of conservatism and speak of them as "clinical cures."

Each year our technique has improved and we are now observing definite results in cases that at first did not respond well to radium.

We are so familiar with the surgical treatment of operable cancer that it is hard to get away from the knife and the task set for radium is the inoperable type or the border line cases. Having observed excellent results from the use of radium in these inoperable cases, some gynecologists

have abandoned the Wertheim operation, even in border line cases, and use radium. Pozzi is one who has adopted this procedure. And we understand his position when we remember that the mortality rate of the radical operation is 15 per cent. to 20 per cent., even in the clinics of the best surgeons. Dr. John G. Clark of Philadelphia gives it as his opinion, "that we will have fewer, perhaps, of the operable cases, in the sense of the desire to operate in the more extensive cases, than in the past and, therefore, shrinkage in the number of surgically operable cases and an increase in the number which will use radium."

It is advisable in all carcinomas of the uterus or cervix to place the radium in the canal. There are two forms of applicators, one for application to the cervix alone and a longer one that will reach to the fundus.

In hemorrhage from the uterus, whether from cancer or due to hyperplasia, radium is of inestimable value, even in cases where curettage has been of no avail.

In the treatment of carcinoma of the uterus it is rarely necessary to employ more than 50 or 60 milligrams of radium element. This is used over a period of from 30 to 60 hours. We divide this period into 10 or 12 hour sessions.

There are times when it is impossible to enter the cervical canal or it may be our real desire to apply the radium to the lips of the cervix, in which case we apply the radium with its posterior aspect heavily screened with lead and rubber and even a few layers of gauze. Because of failure to observe the necessity of this screening, we have seen several cases of recto-vaginal fistula result from the specific action of radium rays. Care must also be exercised when applying radium to the anterior wall of the vagina, otherwise a vesico-vaginal fistula will result.

I am coming to believe that the large doses of radium recommended by some are not advisable. It may be necessary to apply the smaller doses more frequently but we escape the violent reactions sometimes following the large amounts. It must be remembered though that there are cases where 200 milligrams and more are required to bring about the desired results, as in lymphosarcoma. However, in applying this large amount we should screen heavily and elevate the radium at least one centimeter above the surface.

Carcinoma of the tongue, tonsil and buccal membrane is perhaps the most resistant to treat-

ment by radium. Anyone who has had any experience with these cases dreads to see them, because the percentage of recoveries is very small. The basal cell epitheliomas of the soft palate and pharynx yield rather quickly. But when we have a distinct carcinoma to deal with the picture is not good and the prognosis unfavorable, especially if the process has gone on to the point where the floor of the mouth is hard and the tongue bound down. Radium seems to halt the progress of the disease and the patient appears improved. But in the majority of cases this improvement lasts but a short time and they die from septic infection or exhaustion. As surgery can do nothing for these cases and because of even a few recoveries, it is undoubtedly our duty to give the patient the benefit of radium. But if there is no improvement in a month or two, I do not favor a continuance of the treatment unless absolutely requested by the patient or friends. The dosage varies from 25 milligrams for cases where the involvement is small to 150 to 200 milligrams in cases where the tongue and tonsils are involved.

I have observed that there is a stage in the treatment of cases over several months when there is no response and the benefit is negligible.

In the treatment of malignant lesions of the buccal membrane, floor of the mouth and tonsil, I cross-fire with radium or hard x-ray on the outside. In cancer of the tonsil if the glands are much enlarged on the side of the neck, which is usually the case, more rapid action can be secured by burying the radium in the gland or by introducing emanation needles.

In applying radium to the mouth or throat our mechanical ingenuity is frequently taxed to secure a device that will hold the radium in position for a number of hours. I make use of silver wire that is not too pliable that can be attached to the teeth or in some instances held by the patient. I have treated cases of cancer of the soft palate by attaching the radium to a rubber plate made to fit the upper jaw.

Surgical interference in cancer of the bladder seems to do more harm than good. If radium is placed in direct contact with the growth we are doing as much as surgery and sometimes more and we are also escaping the surgical risk. There has been some difficulty in holding the radium in position for more than two hours.

An operating cystoscope is employed by some and the radium is applied through this. This has its advantages in that the operator can see that the radium is actually in contact with the neoplasm. But its disadvantage is that the distension of the urethra (particularly in the male) for more than two hours causes discomfort. Therefore I employ a silver rod to the end of which is soldered a silver container to hold the radium. After this is introduced the rod is held in position by adhesive strips. I employ several of these applicators with various wall thicknesses for long or short irradiations. I rarely use more than 50 milligrams of radium element in the bladder and frequently not more than 25 or 35 milligrams.

The results following radium in cancer of the bladder have been gratifying. Hemorrhage, pain and irritation usually succumb to the rays in a few days. If the treatment has been persisted in, a cystoscopic examination in a month or six weeks will show a marked diminution in the size of the neoplasm and healthy granulations will have appeared. The entire series of irradiations should not consume more than 20 to 30 hours spread over a period of a week or ten days. It may be necessary to give a second series after the lapse of two months. This will depend on the cystoscopic findings. Many so-called carcinomas of the bladder are really papillomas and these cases respond quickly to fulguration, but the latter does not have the lasting effect of radium. It is not always possible or advisable to excise a specimen for microscopic examination, but if the diseased tissues repair quickly, we can be reasonably sure that it is papillomatous, while if the process of repair is slow, we rather correctly assume that the growth is carcinomatous. Papillomas do not require as large an amount of radium as do carcinomas.

Rectum. The good results following the use of radium in adenocarcinoma of the rectum are marked. All cases are benefited materially and a distinct cure has resulted in some. The squamous cell type, situated at the anus, are very rebellious.

Uterine Fibroma. I do not advise radium if the fibroid is very large, but if of medium size the use of radium will bring about a gradual diminution in size in the majority of cases, until no trace remains. Abbe (New York Medical Record, July 9, 1916) states that he has treated

30 cases of uterine fibroid, and has yet to see a case that did not shrink, "some completely, some rapidly,—all in large measure."

Radium can nearly always be relied upon to stop the hemorrhage and this effect is lasting. As a rule the radium is applied for a total of 30 to 50 hours over a period of a week or two. Naturally the best results follow when the radium tubes can be inserted in the cervical canal. But in most cases of uterine fibroid we are unable to enter the cervix and we must be content to place the radium in Douglass' cul de sac. When placed in this position, the radium must be heavily screened posteriorly to prevent undue burning from the beta rays of the recto-vaginal wall.

Prophylactic Use of Radium. After surgical removal of a cancer mass, there is always the possibility that some cancer cells have been spilled even when the operator exercises the greatest care. It is the custom that is becoming more and more popular among some of the leading surgeons and gynecologists, to employ radium as a prophylactic as soon as the stitches have been removed.

Cancer of the breast is one condition where radium should not be used as the initial treatment. Amputation at as early a date as possible, is the only procedure. But after the dressings are removed, radium should be applied for short periods along the line of incision and particularly in the axilla.

In cases where the breast has been removed, but where enlarged glands appear in the axilla and supraclavicular space, radium should be advised. The prognosis in these cases should be guarded, as we are never sure how far the invasion has extended. Long applications are required with heavily screened radium. While we can be reasonably sure that the enlarged glands will disappear under radium, yet more distant involvement may develop in the mediastinum or liver, in which case there is of course little hope.

After removal of the uterus, radium should be applied to the vault for a period of from 30 to 50 hours. The latter period if there is any sign of recurrence. Fifty milligrams is sufficient for this work and frequently a less amount, but not below twenty-five milligrams, will be all that is required. By following this rule, we are reasonably sure that any isolated cancer cells missed at the time of operation will be destroyed

by the radium rays to the depth of 4 cms.

Conclusions: Radium cannot be used indiscriminately. Each case is a separate problem. One case may show marked reaction, both general and local, from a certain dose of radium, while another will suffer no untoward effect. Therefore the dose and length of exposure must be regulated for each case. The reaction may be severe, evidenced by headache, malaise, fever and sometimes nausea. In a few cases where large doses have been used I have noticed abnormal excitement and occasional loss of memory. In nearly all cases where radium is used in the uterus, marked depression will occur about the third day. But whether the reaction is slight or severe, it disappears in from 24 to 36 hours as a rule. If there is violent reaction treatments should be abandoned until such reaction has subsided. After radium applications in uterine cases if there is great discomfort, retained enemata of warm oil should be used and 0.5 grain of codiene by the mouth.

Surgical cleanliness must always be observed. After radium has been applied to the mouth or vagina antiseptic washes and douches should be prescribed and should be used for several weeks after the last application. When radium has been used in the vagina a copious exudate follows that may cause an adhesive vaginitis unless the above precautions are observed.

I have treated but a limited number of cases of exophthalmic goiter, but in each instance the results following radium were eminently satisfactory. In these cases the pulse rate was reduced from 120 to nearly normal, nervous symptoms subsided and the circumference of the neck diminished. Aikins of Toronto and others have reported excellent results following radium in goiter. The action of radium in these cases, is to produce a sclerosis following upon an obliterative endarteritis.

Large and Small doses: In deep seated malignancy we have found that small doses simulate the cancer cells while the large doses depress cancer cell life.

Radium will never place the surgeon in the plight of Othello. The surgeon will still have occupation, but he will find that radium will serve where formerly the knife was brought into requisition, with no hope of ultimate success but merely as a last resort measure.

31 North State Street.

ARTERIOSCLEROSIS AND ITS RELATION TO MENTAL DISEASES.*

EDWARD F. LEONARD, M. D.

Assistant Professor in Neurology, School of Medicine, University of Illinois; formerly Assistant Physician, Jacksonville State Hospital.

CHICAGO.

The healthy brain requires an ample and free supply of blood as well as suitable means of taking away the waste products of tissue change. If it does not have them it cannot perform its functions properly. In cerebral arteriosclerosis the blood vessels do not perform their work as they should; this results in disturbances of the nutrition of the tissues as well as the performing activity of the part.

Until recently most authors have said little in reference to the significance of arteriosclerosis as a causative factor of psychic symptoms. My own observation and examination of patients in the State Hospital and in private practice, however, has led me to believe that arteriosclerosis is an important factor in producing more or less permanent mental changes. It appears that the atheromatous insane suffer from the chronic and incurable forms; the non-atheromatous from the acute forms of mental disorders.

The pathology of cerebral arteriosclerosis represents those changes occurring in the vessels and nervous tissues. In the vessels there is a diminution of caliber due to thickening of its walls; the nutrition of the parts supplied by the vessels is more or less impaired and the neuroglia tissue proliferates; thrombi or emboli may form on account of the intima of the small vessels being rough or gritty; and, when blood pressure is raised, these defective vessels may rupture, causing hemorrhage.

According to Coplin "the cerebral arteries are more prone to arteriosclerosis than those of any other viscera." He places them fourth in the frequency of involvement: 1, Arch of the aorta; 2, thoracic and abdominal aorta; 3, iliac arteries; 4, cerebral arteries.

"As a physiological cause we might say that the cerebral arteries are 'straight arteries' that is, their axis is in a direct line of the blood stream, and on that account they are particularly subjected not only to the highest mean blood pressure, but also to the direct blow of the cardiac

systole, therefore, we should not be surprised to find these arteries sclerosed."

The histories of patients admitted to State Hospitals show the *causes* given for production of insanity to be, in a great many instances, the same as the etiology of arteriosclerosis. For example, chronic alcoholism, overwork, interstitial nephritis, gout, diabetes, high living, syphilis, tuberculous, rheumatism, influenza, scarlatina, etc.; also certain nervous factors, as worry, emotion, excitement, or excessive brain effort.

In the physical examination of 343 patients consecutively admitted to the Jacksonville State Hospital, I found seventy-four had sclerosed radial arteries; twenty-eight of these were under sixty years of age. Of these 343 patients, 152 showed cardio-vascular trouble, though only seventy-four had sclerosed radial arteries. Dr. Carl G. Rydin, formerly of Kankakee State Hospital, found on examination of 250 acute and convalescent insane patients, that over 40 per cent had some form of cardio-vascular disease.

At the Central Hospital for Insane, Indiana; of 265 admissions, twenty-three had marked arteriosclerosis. At King's Park State Hospital, out of 279 patients, twenty-nine were admitted with a diagnosis of cerebral arteriosclerosis. This did not include the cases of senile dementia; of which there were forty-seven. Starr says: "In a study of 200 cases of apoplexy, 80 per cent, showed many of the prodromal symptoms of cerebral arteriosclerosis."

"Meyer has called attention to the fact that the nervous system may suffer in three ways as the result of arteriosclerosis: 1. There is a reduction or marked change of metabolism due to arteriosclerotic disease in one or more organs; 2. the changes in the nervous system are directly the result of disturbance in the vascular mechanism, or 3. there may be a lowered metabolism due to a state of exhaustion caused by the action of toxic substances."

It should also be remembered that the following mental conditions may show pathological changes in the arteries: Intoxication psychoses, organic and senile insanity, manic-depressive and symptomatic depression, involutional psychosis, paresis, epilepsy (especially senile), and even some case of dementia praecox. Spitka holds that "a general sclerosis of the cortical vessels is a common condition of advanced insanity."

As statistics apparently point plainly to a

*Read before the North Shore Branch, Chicago Medical Society, January 2, 1917.

strong relationship between arteriosclerosis and mental diseases, it seems to me to be most essential that one should learn to recognize this disease in its early stages. A study of its symptoms and physical signs, in addition to the use of the sphygmomanometer, will reveal to the physician the fact that many of the symptoms of which his patients complain are due to hypertension. But in a number of cases the blood pressure is not raised.

It must be borne in mind, however, that an examination of the peripheral vessels does not always give a correct idea of the extent of the arteriosclerosis, as the vessels of the brain may be involved more than the peripheral vessels. An examination of thirty-seven paretics showed only six with arteriosclerosis of the radial arteries, but the cerebral vessels would no doubt show degenerative changes on post-mortem.

It is necessary, too, to take into account that there need not be a specific agent to cause arteriosclerosis, but that any factor capable of producing long-continued irritation of the vessel wall will result in connective tissue changes. Two etiological features of this disease, however, stand out prominently: 1. Increased blood pressure for any cause, and 2. certain hereditary influences that induce degenerative changes in the vessels. (In some families there is a hereditary tendency to apoplexy.)

Indiscretion in eating and drinking, with the resultant intestinal fermentation, must not be forgotten as a frequent cause of increased blood pressure. Bacterial toxins, metallic poisons and tobacco are also etiological. In ten of my own cases alcoholism was given as a cause, and syphilis is said to be responsible for a large percentage of cases. Moritz, in a study of one hundred cases of arteriosclerosis under sixty years of age, found that forty-seven gave a history of syphilis. Sir J. Barr regards syphilis as the most important factor in the production of the disease.

Prolonged or excessive muscular effort also acts as a contributory cause of arteriosclerosis. Thayer and Brush: "in an analysis of nearly 4,000 patients suffering from various diseases, found the percentage of palpable arteries higher among individuals in whom there was a history of heavy physical labor." The occupations of the patients on whom I based my statistics were, to a large extent, farmers, laborers, or mechanics.

Atheroma is frequent in the aged and is due to senile changes, but endarteritis obliterans may occur at any age, many cases having been reported between the fortieth and fiftieth years. It has even occurred as early as the twentieth year, and there have been reports of cases found in infancy. Rapid aging may bring a man of thirty to the same status as the one of seventy.

Symptoms—The earliest symptoms may be neurasthenic in character, as complaint of slight headache, some insomnia, a general feeling of malaise, attacks of giddiness, epistaxis, singing in the ears, and the patient may be slow in thought and movements, is irritable (irritability of temper is fairly constant,) shows lack of control over emotions, and is unduly sentimental. When headache occurs and persists with occasional vertigo, the possibility of arteriosclerosis should be suggested. The patient may also complain of temporary sensations of numbness or weakness in one limb, or on one side of the body, irregular darting pains in the head and slight uncertainty of vision. The motor, sensory or psychic field may be involved in the symptomatology.

As the disease progresses he becomes disoriented, does not know where he is, has no idea of his age, and is unable to tell what year it is. Failure of memory is noticeable from the first. Proper names and recent events are difficult to remember. The cortical perception centers are incapable of retaining new impressions and the patient lives in the past. He also forgets where he places things, and perhaps accuses others of having stolen them. At first he makes mistakes in his ordinary work, later he loses the faculty of using objects correctly. Throughout the whole course of the disorder insomnia at night is the rule and is accompanied by motor restlessness. In the daytime, however, these patients are peculiarly liable to drop off to sleep in the midst of a conversation, or even when actually speaking. There is no classical picture.

As even the few facts and statistics I have given seem to justify the conclusion that there is some relation between mental diseases and arteriosclerosis, the point I wish to emphasize is that the neurasthenic, anemic or hyperemic brain symptoms of a patient in middle life should not be passed over lightly, for they may be signs of cerebral arteriosclerosis. These patients should be carefully examined and their mode of living

so regulated as to minimize the progression of the disease as much as possible.

25 E. Washington St.

REPORT OF CASES OF FOLIE A DEUX.*

S. N. CLARK, M. D.,

KANKAKEE

Folie à deux is not satisfactorily defined. Diefendorf¹ says it is a "broad term which has been applied to the occurrence of a mental disturbance in two or more individuals who have been intimately associated with each other." A review of the literature leads one to believe that ordinarily there is, in the cases to which the term is applied, a similarity in the manifestations of the disorder or, at least, the acceptance by the one last affected of the ideas held by the other.

Following an allusion to the condition by Bailarger, folie à deux was described in a number of papers among which those by Laseque and Falret (1877), Regis (1880), and Marandon de Montyel (1881) stand out with especial prominence. These papers outlined respectively the three forms commonly considered: first, "imposed insanity," in which an inferior individual on being brought into intimate contact with an insane person of more positive personality than himself accepts the false ideas of the other. Such ideas are generally persecutory in type. If the two are separated, the weaker individual tends to drop his acceptance of the beliefs of the stronger; second, "simultaneous insanity," which is characterized usually by depression, with delusions of persecution "which appear simultaneously in two morbidly predisposed individuals."² third, communicated insanity in which "the second individual accepts the ideas of the first only after prolonged resistance and the psychosis persists in the second even after the two have been separated."³

These forms are mentioned in order to make more clear the types of cases embraced by the term folie à deux. Critical consideration of the three forms does not lie within the scope of this paper, but it may be said in passing that there has been much criticism of attempts to distin-

guish each form as separate and distinct from the others.

Between the years 1879 and 1893 numerous cases were reported, but since that time very few references have been made in regard to the subject. Perhaps this has been due to a belief that interest in such cases is exhausted, but it is the opinion of the writer that the following examples are worthy of mention. They are presented not as psychiatric curiosities but because their consideration brings to light certain points of practical interest.

Cases which fall within the limitations set by the term folie à deux are not of infrequent occurrence. Of the nine cases collected by the writer, four will be presented.

Case 1. Francisca M.—A woman of frank but unsociable disposition, whose judgments have probably always been highly colored by her own preferences, developed at 38 years of age, apparently simultaneously with a favored sister, a persecutory trend with occasional hallucinosis.

In this patient the trend was well systematized and was compensated for by ideas of personal importance. Deterioration did not become evident in the 19 years following the onset of the psychosis. She died at 57 years of age from a cerebral hemorrhage.

The father died at 55 or 60 years of age of "dropsy." The mother died at 40 years of age in a delirium. No more exact information was obtained in regard to the causes of the deaths of the parents. A brother is alcoholic and peculiar. A sister, Selma, is a patient in the Kankakee State Hospital. She holds ideas similar to those held by this patient, but they are not as well systematized. It is believed that she shows an affective deterioration and is classified "dementia praecox."

This patient, Francisca, was born in Copenhagen in 1858. She was a healthy child and apparently developed normally. She lived at home with the exception of one year until, following her father's second marriage, she and her sister came to the United States in 1891.

The sisters established themselves as dressmakers and were successful. This patient was a very good worker and a skilful dressmaker. She remained single. The menopause occurred in 1912.

In regard to disposition, it is said that she never could get on very well with strangers, was not sociable and never had any friends. Of the sisters, this patient was usually the leader and was first to speak of others intending harm toward them. (It is not known whether this refers to the onset of the frank psychosis or is a general statement in regard to all previous difficulties.) It is said that she was somewhat better natured than her sister, and not so quick-tempered, but when she became angry she remained so longer.

A further index of the personal make-up is found in her method of meeting difficulties in the Kankakee State Hospital. A criticism may be expressed that

*Read before the Fifth Annual Meeting of Alienists and Neurologists of the U. S., June 23, 1916.

1. Diefendorf, Allen R.: Reference Handbook of the Medi-

²Ibid, 1902.

³Ibid, 1902.

since she was then obviously "insane" her personal characteristics were no longer comparable to those present before the psychosis. Although this objection cannot be met with entire satisfaction, some justification is found in the consideration of certain factors: first, the elements considered here are those which are not of necessity related to any psychotic manifestation and occurred when all such manifestations were in abeyance; second, they appear to be only such as might be expected as an amplification of the disposition briefly set forth above.

During her residence in the hospital, the patient took a personal view of all alleged injustices toward her sister and of any restrictions imposed upon herself. When the sister was resistive and refused to go to bed, Francisca vigorously sided with her. She was quite angry when Selma had a quarrel with another patient and claimed the latter had struck her sister, although the evidence pointed to her sister as the aggressor.

She accepted, without question, the sister's statements in regard to not being allowed to go out, when, as a matter of fact, she had refused to go out with the others when she had an opportunity to do so. The sister became noisy on one of the wards because, so she explained, there was a colored man outside who was intent upon harming her. Following an altercation with one of the other patients, Selma claimed that one of her ribs was broken, although there was no objective evidence of a fracture. All of this Francisca believed implicitly and she brushed aside any argument on the part of the physician that the ideas mentioned had no adequate basis. She, on her part, did not argue the points in question, but cited them as facts and demanded that her ward physician remove the sister from the ward on which the trouble occurred, although he had no jurisdiction over the ward in question. After she became thirsty on one or two occasions while walking about the grounds, she demanded that the physician allow her to get a drink at the pumping station (a very unwise precedent to establish) or have a drinking fountain placed on the lawn, something quite beyond his power to do.

At all times there seemed to be a lack of ability to consider others when her own wants or those of her sister were in question. This resulted in a very one-sided judgment, one in which she believed she was being unjustly treated. She met the fancied persecutions with a very outspoken, well-worded, emphatic statement of her wrongs and with a demand for redress. She was angry, but self-contained and self-sufficient.

Her account was briefly as follows: The patient, in conjunction with her sister and one other woman, patented a certain style of petticoat in 1896. A certain large store, F. and Co., stole their idea and placed many of the petticoats on sale. The patient's partner had her lawyer prevent F. from selling the articles so that the store suffered a loss. From that time on the company persecuted the sisters, both because of the petticoat affair, and because it wished to crush all small dealers. In 1898, a man while passing the sisters,

held a revolver to the face of the patient. Later she overheard someone say this man was associated with F. In 1899 the store delivered some goods the patient had ordered, and later an employe of the store called and said that one of the packages which had been left did not belong to the patient. The purpose of these happenings was to annoy and intimidate the sisters. In 1900 the patient made an enemy of the street car company by demanding a seat before she paid her fare. The newspapers referred to the incident and from it sprang a movement which forced the car company to run larger cars. Some time later, three men shot at the sister and herself while they were riding bicycles. Each man shot once and the patient not only heard the reports, but heard the bullets whistle by their heads and *saw them* as they passed by. She threw herself on the ground and called to her sister to do the same. The men probably thought they were hit and ran away. The patient found there was a hole through her skirt, "evidently made by a bullet." "These men were in the employ of the street car company."

From a newspaper they learned that a rattlesnake had been found near a certain bench in one of the parks. The patient identified the bench as one on which she and her sister often sat. The sisters began to overhear remarks, such as "Wish those two were out of the way." They decided they had better leave Chicago, and in October, 1900, went to New York. They remained there, with the exception of four months spent in Europe, until May, 1902, when they returned to Chicago because the relatives who had been keeping their furniture for them were going to move. The sisters were not persecuted while away from Chicago, but shortly after they returned they were bothered worse than ever. From that time on their troubles increased. The street car company tore up its tracks in front of their shop and piled cement, lanterns, etc., on the sidewalk. This showed a conspiracy on the part of the big stores to hurt their small rivals. The patient widened the breach already existing between the car company and herself by insisting that the sidewalk in front of her shop be cleared.

The big stores, the car company and even the banks were combined against the sisters. F. was the owner of the bank with which the patient did business, and it was easy for him to see by the checks she cashed who her customers were and he was enabled thereby to exert influence against their continuing to be such.

The machinations spread until almost everyone with whom they came in contact was involved. A man wanted them to advertise in a church paper he represented and when they refused had them arrested for walking across a lawn. Agents tried to persuade them to display goods they had no license to sell; so that suit might be brought against them. People came to ask for thread and other things which they did not sell. Even certain of their real customers were involved in the plot to injure the sisters in some way.

The sisters' pictures appeared in political cartoons and moving pictures. They had become prominent.

for there were many who sympathized with their action against the car company and the big stores. A searchlight was placed in the building next door by means of which their persecutors could see them at all times. Vulgar remarks were made when they were undressed, etc. Finally it became so that they were followed every time they left their store and they were afraid to venture outside. They refused to pay rent for living in such a place and their case was brought to the notice of the police. They were shortly afterward sent to the Kankakee State Hospital—July 11, 1913.

This patient was found to be a well-nourished, heavy-set Danish woman, apparently 48 years of age. There were no evidences of somatic disease, except for a persistently high blood pressure. She clearly grasped the situation. There were no defects of memory. General and school knowledge were quite good.

Her interest at the time of admission and during her residence seemed as great as that of the ordinary individual. This is shown by the following:

1. The degree to which her ideas were systematized. Only a portion of her story is given above. It was an orderly account. Names and dates were given wherever people or incidents were spoken of, and the different occurrences were associated together to form a history quite as complete and connected as one would ordinarily hear from a fairly well educated person, should he review his adult life.

2. Reaction to ideas. The patient protested against her persecutions, wrote letters to the municipal government and finally refused to go out when in fancied danger of being killed.

3. Interest shown in matters not directly associated with persecutions. She wrote letters about her release from this institution, cared for her own clothing and for her sister's welfare and worked well on the ward. In this, she showed foresight and efficiency. She read the papers and followed current events.

During the first few months of her residence she spoke of feeling an invisible searchlight on her body. In June, 1914, she saw three men watching her with evil intentions. She believed they were in league with her enemies in Chicago. Later she said she heard voices say, "Now, she is dusting," "Now, she is dressing," etc. She stated that these did not worry her because she felt no one could harm her while in the institution. She continued to believe that certain cartoons referred to her and was quite indignant about them. Her story of the past remained the same. Most of her troubles in the institution were on account of the sister. These have been considered elsewhere.

No definite change was apparent in the patient's ideas or in her reaction to the situation while she remained in the hospital. On November 7, 1915, a cerebral hemorrhage occurred and she died the next morning.

Case 2. Selma M. A woman of unsociable and presumably retiring disposition who, at 30 years of age, developed a persecutory trend which was apparently to a large extent based upon sense-falsifications.

In this case an affective deterioration, 19 years after

the onset of the psychosis, is shown in a lack of systematization, retirement from actualities and colorless mood.

This patient, the younger of the two sisters, was born in Copenhagen in 1866. She acquired knowledge readily. As a child she was "sickly" and for that reason was petted and allowed to have her own way. She came to the United States with her sister in 1891 and engaged in dressmaking with her. She was skilful and industrious. She never married.

In regard to disposition, she was quick-tempered; at times, remained angry for several days. She did not make friends, never had anything to do with the neighbors and, in fact, did not get along even with her brother. The statement is made that she believed she was "smarter" than others. A failure to face problems frankly was noted later during her residence in the Kankakee State Hospital.

From the history obtained, it is evident that the sisters were closely associated at all times and that both held practically the same beliefs in regard to being persecuted, although it is said that the elder developed such ideas first.

This patient was admitted with the other on July 11, 1913. She was correctly oriented and presented no obvious intellectual defects. In the account of her past difficulties, she spoke of persecution by the street car company and said they tore up the street in front of the shop kept by the sisters in order to "bother them." The two appeared in moving pictures which were shown with the idea of gaining votes from all those opposed to the big stores. Men had followed them with the intention of killing them, and she heard voices talk of the desire of their enemies to be rid of them.

By means of a machine, people saw the sisters through the walls of the store and made remarks about them. Her story of being shot at while bicycling was exactly like that of the sister. She said that she saw the men shoot, heard and saw the bullets as they passed by their heads and that later a round hole made by a bullet was found in the sister's dress. Later the patient spoke of the trouble which followed the patenting of the petticoat and of the arrest after she and the sister had walked across a certain lawn.

It may be seen that the incidents mentioned by this patient were practically the same as those given by the elder, but a wide difference lay in the fact that in this account hallucinosis was more prominent and there was far less systematization. The different experiences were not told in sequence. She said she did not know why a certain man had been sent to stab her. Frequently the only reason for holding the belief that certain acts were persecutory was that she had heard people say as much. These hallucinations were accepted without apparent demur. The beliefs of Francisca, on the other hand, were apparently founded upon actual occurrences, wrongly interpreted, rather than upon hallucinatory experiences.

During her residence in the hospital, Selma continued to hallucinate. Voices told her that "anarchists" could remove the bars from her window and "get her when-

ever they wanted to." She could feel an "x-ray" being directed upon her and there was a foul odor in the room which made her feel ill. Others said they could not go home until she left; "another lady said I killed her husband," etc.

Deterioration of interest is clearly shown. The ideas developed while in the hospital were not at all systematized. She did not react to the extent of making clear her position and did not write letters except on three or four occasions. She quarreled with others and seemed to feel everyone was against her, but there was little open defiance such as was the case with the sister when crossed. Selma spent most of the time in a room alone and was often heard talking to herself. She did practically no work, although since the sister's death she has taken care of her own clothing. Disinterest is shown also in the failure to keep alive the ideas she had on admission. The account of her previous difficulties has become more and more fragmentary. On March 29, 1916, she said she did not know who had persecuted her in Chicago unless "the banker did it." A man was sent to kill her and she believed he had something to do with a certain grocery store, because the clerks in the store seemed confused when she entered it later. This meager recital was all that could be obtained without resorting to leading questions. When asked about the different episodes she had mentioned on her arrival in the hospital, she seemed to have to search her memory for them. She was able to recall each incident, but did not know whether or not it was evidence of persecution. A scattered bit of the partial systematization which formerly had been present was shown in her statement that F. & Company attempted to wrest customers away from the sisters. When asked how the store knew the names of the customers, the patient said "they saw our checks."

This was given only after much questioning, and apparently as an afterthought. The fact that she no longer included many episodes in her persecutory trend is not to be considered as evidence that she had corrected such ideas. She was as positive as before in general assertions that she and her sister had been hounded during their residence in Chicago. Altogether, the lack of systematization may be taken to signify that she no longer was sufficiently interested to attempt to explain and rationalize the persecution which she still believed existed.

Her mood was to some extent resentful, but rather empty withal. Her tone was colorless and she even smiled slightly when she said a certain patient was going to kill her. It was obvious that she was not greatly distressed by the idea.

Case 1 was classified as a paranoic state, whereas Case 2 was placed among the dementia præcox group of cases of the paranoid form. Diefendorf⁴ and Kiernan⁵ also cite instances in which cases of folie à deux suffered from different forms of mental disorder.

Here are presented the cases of two sisters, who as children were brought up in the same environment and who during adult life were practically inseparable. Each developed ideas almost the same as those held by the other. It would seem in regard to these two that all manifestation founded upon environmental influences should be identical. That a great similarity existed is obvious, but the resemblance was of the outward expressions of the disorder rather than of the more fundamental elements based upon the constitutional make-up which determined the type of the disorders. Granting the correctness of these statements, one has in such cases a not unworthy contribution to the question of the relative influence of environment and constitutional make-up in the development of mental disorders.

It seems probable that each of these cases would have become insane even had she been separated from the other at an early age, but in that case the course in each instance might have been materially altered. From the records one may judge that each added the false interpretations of the other to her own beliefs. Each caused very much less friction in the routine of ward activities after she was separated from the other. It was found soon after they were admitted that the situation was intolerable so long as they were permitted to remain together, because each lent support to the protests of the other.

Although the injurious effect of the contact of cases of folie à deux is here shown, something may be said in favor of the association in this instance. The younger sister showed a far greater scattering of ideas following the two and a half years spent in the institution than occurred in the seventeen years during which she held the ideas of persecution while at large. One cannot but suspect that the lack of greater deterioration on admission to the hospital was due in a large measure to the stimulating influence of the sister. If this suspicion is well founded, it is a point in accord with the general belief that environment as well as make-up plays an important part in the course of the disorder.

One point in the history which stands out with particular distinctness is the statement made by each in regard to being shot at while on a bicycle. One cannot believe the stories as told and the first alternative which suggests itself is that the experience was hallucinatory in char-

4. Ibid, 1902.

5. Kiernan, Jas. G., alienist and neurologist, April, 1883.

acter. The fact that they said they heard and saw the guns and the bullets would suggest a dream state if the entire experience were explained as a hallucinatory episode. Nolan⁶ mentions the simultaneous occurrence of a dream or hallucination in two brothers who were separated at the time. The account of the sisters was too clear and detailed to have been based upon a dream state. The most probable explanation would seem to be that some actual occurrence, perhaps with auditory hallucinations on the part of one of them, took place and the usual false interpretations followed. The fact that both claimed the experience need cause no hesitation in arriving at such surmise, for each always maintained any idea expressed by the other regardless of its absurdity.

Cases of folie à deux do not always continue to hold delusions after they are separated. Of the following cases the younger would seem to be an example:

Case 3. U. E. A.—A man said to be bright, but whose aims were ill-advised and who always showed a tendency to believe others were taking advantage of him. In his later years, possibly coincidently with the onset of old age and the development of pernicious anemia, he developed a persecutory trend which was well systematized and to which he reacted frankly. Death occurred at 68 years from erysipelas and pernicious anemia.

No family history was obtained. The patient was born in 1847 in New York. He had a common school education and according to his own statement acquired knowledge readily. He was first married in 1866 at 19 years of age, and a son and daughter were born as a result of this union. He was divorced by this wife and later was married again three different times. One of these wives, the mother of H. W. A., who later shared his father's experiences and held the same ideas, died with tuberculosis. Each of the other two wives obtained a divorce or separated from him.

In early adult life he engaged in the manufacture of brooms for a few years. Later he worked as coachman for a short space. From 1882 to 1901 he was in the real estate and hotel business.

While so engaged he was quite successful financially for some years, but finally lost all except some land in South Dakota. He moved to that state with his son and probably worked to some extent, but spent most of the time moving about from one place to another, remaining in each only so long as the hotels and boarding houses would overlook payment of bills. Although part of his land was mortgaged, the patient took no adequate steps to remove the encumbrance. Finally, the patient and his son moved to Chicago with the intention of opening a real estate office, de-

spite the facts that they had between them only one dollar in cash, held no definite plans, looked like farmers and that the patient himself was in poor health. They attempted to establish credit in certain restaurants and rooming houses, but after they were found unable to pay according to promises they had made, were arrested and committed to the Kankakee State Hospital on March 12, 1915.

The patient had been considered "queer" for years. In 1909, a brother said "Everybody knows he is mentally unsound and unfit to be at large; he has been that way for years, in fact." The patient threatened his brother so that the sister thought he should be confined. A physician who had known him for 25 years said that he was in "litigation almost constantly," and that his efforts to conduct his own cases in court on occasions were amusing.

His own account was that of one who many times has been wronged by others. His first son stole the proceeds from the sale of his broom business, the first wife divorced him while he was ill, the third wife robbed him of practically all he had. He ascribed the difficulties of the past year, including an arrest for nonpayment of board while he was in Dakota, to his failure to obtain needed backing in his attempt to open a real estate office in Chicago, and finally the arrest and commitment, to the activities of his enemies. Chief among these was the man who had foreclosed a mortgage on his land ten months before. According to the law of the state, the patient could redeem the property within a year after foreclosure, but the one who held the mortgage, loan agents he had interviewed, the ones who had refused him room and board, etc., were banded together in an effort to prevent his redeeming the land. The officers who arrested him helped themselves to the contents of his pockets, the judge refused to listen to him, the examining physician purposely erred in reporting his case and the assistant superintendent was in league with his enemies in Dakota. Apparently it had not occurred to him that he merited censure for defrauding restaurants and hotels.

His attitude was one of indignation toward his persecutors. At times he became very excited and talked loudly of the injustice done him. He became so suspicious during the examination that he finally refused to answer questions. For this reason, it was impossible to learn the full extent of his persecutory trend and to make the formal tests for memory and fund of general knowledge. He evidently grasped the situation.

When admitted to the hospital he was 68 years of age. The physical examination was not entirely satisfactory, due to a lack of cooperation on the part of the patient. He was poorly nourished, elderly in appearance and evidently weakened. There was some hardening of the palpable vessels, but the systolic blood pressure was only 130. The Wassermann of the blood was negative, although it was said that he had contracted syphilis in 1893. A severe grade of anemia was present. The hemoglobin estimate was 70 per cent; the red cell count, 3,560,000; color index, 0.98; white

6. Nolan, M. J., *Journal of Mental Science*, April, 1889.

cells, 8,200. The patient became progressively weaker, and on April 29 developed facial erysipelas. On May 1 the hemoglobin estimate was 45 per cent; red cells, 1,160,000; color index, 1.9; white cells, 4,080. Microcytes, poikilocytes and normoblasts were present. No megaloblasts were found. He died May 2, 1915, of erysipelas and pernicious anemia.

Before his death the patient said he had been quite weak and ill at times for years with "anemia," and the son said he had been given up to die by physicians. It is quite probable that this condition and his advancing years had much to do with the greater difficulty in meeting the problems presented toward the end of his life.

Case 4. H. W. A.—Neuropathic heredity and defective intelligence in a man who believed implicitly in and reacted fully to the paranoid ideas held by the father. Following the death of the latter, this patient apparently dropped all such ideas.

The father suffered from pernicious anemia and was evidently a paranoid individual. In at least the later years of life he developed a paranoid state. The mother died with pulmonary tuberculosis.

The patient was born in 1887 in Chicago. He attended school for about six years and progressed as far as the fifth grade. In later life he admitted that arithmetic was difficult for him, but said he stood high in other branches. He left school because his father was ill and had lost his money.

The patient was employed as a delivery boy, worked with a threshing gang, with a constructing company and farmed, but never achieved any definite aim and did not continue to work long in one position. He always remained near his father and traveled with him when the latter wandered about the northwest.

He and his father were described as being queer, the term being referred to the two or to the father, rather than to the son alone. One informant, a bank official, said, "It is the opinion of people acquainted with this pair that the son was strong enough in intellect, but lazy." Another said the patient was well liked, although he and his father were "queer acting people."

He followed the fortunes of the father and was arrested and admitted with him on March 12, 1915, to the Kankakee State Hospital. He was found to be a well-nourished young man. The right pupil was 4 mm. in diameter, the left 3 mm., but both reacted well to light and accommodation. The palate was high and narrow; there were no very definite stigmata of degeneracy and no evidences of somatic disease. The Wasserman test of the blood serum was negative.

His ideas were practically the same as those held by the father. He said they were arrested in Dakota at the instance of those who wanted to prevent the redemption of land, owned by the father, on which a mortgage had been foreclosed. The commitment was a "frame-up" from "beginning to end." He said he and his father believed an uncle might be partly responsible for their commitment, because the latter had told the patient in 1909 that the father ought to be placed in an insane hospital. When the ward

physician offered advice in regard to the best way of regaining title to a portion of the land, the patient expressed the opinion that the man who held the mortgage had visited the institution and put the physician up to giving such advice. He backed up his father in all his statements and said he could see no evidence of bad judgment in the plan to start a real estate office in Chicago on a capital of \$1.00.

In spite of his illness, the father seemed to be the dominating member. The son on several occasions prefaced his opinions by the statement that he had talked matters over with the father, and they had decided thus and so. When questioned, he looked to the older man for signs as to whether he should or should not answer, and he seemed "to lean on the other for support throughout." At first he talked rather willingly, but after whispered conferences with his father he refused to reply to queries. Like his father, he was suspicious that the hospital authorities were in league against him and that he might compromise his position by answering questions. Even when the elder man became quite excited and the patient was asked to calm him because the excitement might be injurious to one so feeble, the young man refused, saying his father "knew what he was doing."

No odd or impulsive reactions were noticed. Hallucinations were denied. Interest seemed quite keen. He was correctly oriented and showed no memory defects. The fund of general and school knowledge seemed fairly good, but when tested by the Binet-Simon intelligence scale, he graded up to about eleven years.

During his residence in the hospital no change was noticed in his attitude. He wrote many letters for his father and continued to hold the same ideas. He would do no work for the authorities, but cared quite adequately for his own needs.

On the day his father died, May 2, 1915, the patient was paroled to his uncle. The statement appears in the notes that toward the latter he seemed "obedient as a child would be." The Illinois Society for Mental Hygiene, by whom he was employed following his parole, kindly gave the following report in regard to his services:

"We found him capable of doing only work of the most simple character, such as errands. He was able to accomplish only one errand at a time and seemed to forget that any other was suggested. In handicraft he was absolutely not teachable. He said very little about his ideas of a persecutory nature, but had the highest regard and affection for his father."

These cases show more clearly than Cases 1 and 2 the influence of environment. The pernicious influence of one upon the other and the need for separating such cases is obvious. In fact, not only the welfare of the patients, but also the safety of those about them demand supervision and segregation. Folsom⁷ cites the

7. Folsom, C. F., *Boston Med. & Surg. Jour.*, March 11, 1880.

case of a man who killed his own child after his wife asked him if he could make a sacrifice "like Abraham." It may be presumed that many who develop "insane" ideas are foredoomed to do so because of a constitutional bias;—a certain type of make-up which basically always remains the same and which is unaffected by the fact that others around them are sane. If rapport is established between such case and another insane individual, the ideas of each may be altered and even the course of the disorder may be changed as it might be by other environmental factors.

Other cases accept the ideas of those who are insane if brought into close contact with them. These individuals have been considered of inferior intelligence.

The problems presented by the cases of folie à deux are those in common with insanity in general, in addition to which they show especially a need for teaching that beliefs should be correlated with concepts held by the mass.

The special interest attaching to cases of folie à deux is found in the light which they throw upon the problem of environment and heredity, as well as upon the way in which false ideas may be developed.

THE PRESENT STATUS OF EPIDEMIC POLIOMYELITIS.*

ARCHIBALD L. HOYNE, M. D.

CHICAGO.

In dealing with the subject of this paper, it is quite evident that a discussion of the topics correlated to it might be carried to almost unlimited lengths. But while such a review might possibly be of value any practical considerations would suffer in the haze.

Etiology—Wickman was the first to point out that poliomyelitis may be communicated from person to person and also that healthy individuals may act as carriers of the disease. Therefore it is often extremely difficult to trace cases, due possibly to the very fact that the source lies in a human healthy carrier.

The disease is always more prevalent during the warm months, and is not necessarily a respecter of age. However, of the first thirty cases, all of which were on my service, admitted to the County Hospital last summer, slightly more

than 86 per cent were under 5 years of age. In the matter of sex, the distribution is nearly equal.

A point which I have particularly observed in the Chicago cases has been the matter of complexion. A great majority of the cases have been fair-haired and most of the remaining number with brown hair have at least been blue-eyed. This suggested the likelihood that those of fair complexion are more susceptible to poliomyelitis. Furthermore, we know that the disease has always been particularly prevalent in Norway and Sweden, countries with fair haired races. On the other hand, it is stated that in the New York cases the disease was very common among the Italian race. We do know nevertheless, that cases among the Negroes are comparatively rare.

Based on Frost's estimates, poliomyelitis is about one-third as contagious as scarlet fever and about one-half as contagious as diphtheria.

Bacteriology—Flexner and Lewis maintain the definite cause of poliomyelitis is a filterable virus, and have offered from time to time abundant evidence to back up their claim.

But now during the past year Nuzum, Herzog, Rosenow, Mathers and others have reported the discovery of a micrococcus as the causative organism. There seems to be much reason for accepting the evidence of these men as proof, and yet is the proof conclusive?

Very recently Bull¹ has pointed out in referring to the experimental work of the foregoing authors that the mere appearance of paralysis in animals is not sufficient for concluding that poliomyelitis exists or has been produced. This of course we know to be true.

If the organism of Nuzum and Herzog is not the causative factor, then the substance of our bacteriological knowledge of this disease is only slightly more definite from a practical standpoint than it was 50 years ago. Bull refers to this organism as a streptococcus, and says that it is no different from a streptococcus obtained from throats of patients who are not poliomyelitis sufferers. He simply regards the organism as a secondary infection and states that it does not produce the same changes in the cord that are caused by Flexner's virus.

Diagnosis—Without discussing the various types, one thing must be self-evident to anyone

*Read before the Chicago Medical Society, April 11, 1917.

1. Bull: Jour. Exp. Med., 1917, XXV, 577.

having any experience with this disease. I refer to the necessity for the presence of some paralysis or at least a marked paresis in order to make a positive diagnosis without the aid of a lumbar puncture and laboratory assistance. Anyone claiming to possess the power to diagnose an abortive case without the aid of the laboratory is deserving of suspicion. By abortive case I mean a so-called case in which there is neither transient paralysis nor weakness.

There is no one typical symptom in the onset of poliomyelitis, and so, though the disease may be suspected on account of an existing epidemic or because of known exposure, no certain diagnosis can be made without laboratory assistance until the paralysis develops.

Among some of the commoner errors in diagnosis which I have seen have been rheumatism (4), broncho-pneumonia (5), tubercular meningitis (8), chorea (1), alcoholic neuritis (2), abscesses (2), injuries of head (1) and back (1).

Control of Epidemic—It is a well known fact that poliomyelitis follows the lines of travel in its spread from place to place. It is undoubtedly conveyed chiefly, if not exclusively, by human carriers.

But as the possibilities for the conveyance of poliomyelitis are not definitely and absolutely known, the only adequate means for holding the disease in check is to remove the source of infection from the midst of a community by hospitalization.

Since it is generally agreed that poliomyelitis is not ordinarily conveyed by food, milk or water, these special subjects need be given no attention here.

Prognosis—The general tendency of all cases is either to grow progressively worse from the onset of the paralysis or else by the end of a week to show at least an inclination toward improvement. Cases in which the upper extremities are involved should be regarded more seriously than those in which the lower extremities alone are affected. Adults are likely to have a severe type of the disease. Patients in whom the respiratory muscles are paralyzed seldom recover.

Nevertheless it must not be forgotten that statistics of various epidemics show complete recoveries occurring in from 15 to 50 per cent of the cases. It is this very fact which makes

it so difficult to gauge the actual value of any special treatment in the acute stage.

Another point worthy of note is that few poliomyelitic cases die as a result of inter-current affections. The commonest cause of death is paralysis of the respiratory apparatus.

The mortality in the New York cases last summer was said to be about 26 per cent, whereas the Chicago death rate for this disease during the same period was approximately 15 per cent.

Treatment, Acute Stage—Aside from the necessity for isolation, absolute rest, quiet and elimination still seem to be the essentials for successful treatment. We have had recommended in the treatment of this affliction urotropin, which has now been pretty conclusively shown to be useless. Intraspinal injections of adrenalin chloride, normal horse serum, human serum from convalescent patients and a serum prepared by Nuzum have all been tried at the County Hospital. Patients have made remarkable improvement when treated according to any one of these methods. Some patients have also been lost in spite of such treatment. Remembering that at times 50 per cent of poliomyelitis cases may make complete recoveries, it is at once apparent that the value of any one remedy cannot be determined until thoroughly tested in a large series of cases.

Among approximately 116 cases of poliomyelitis which I have had on my service at the County Hospital, there have been but three deaths—these due to respiratory paralysis. Among the recoveries a large percentage received no intraspinal medication, but were, I believe, always benefited by lumbar puncture. Normal horse serum, given intraspinally, seemed to be of marked benefit, and adrenalin chloride usually caused some temporary improvement.

Flexner and Amoss state that a sample of blood taken on the sixth day of illness showed that it already contained the neutralizing principles. There is no danger in using this blood for treatment, because Clark, Fraser and Amoss have shown (1914) that the virus has never been detected in circulating blood of human beings even in the first days of disease.

Now Amoss and Chesney² have recently reported the results of 26 cases treated with human convalescent serum. The serum was given al-

²Amoss and Chesney Jour. Exp. Med., 1917. XXV, 581.

ways intraspinally (generally about 10 c.c.) and also either intravenously or subcutaneously in much larger doses simultaneously. Of the 26 cases, three died (respiratory paralysis). In two there was no change, in 7 disease unchecked (grew worse after serum), but 17 improved; all of which, while being of value as an experiment, really proves little or nothing. The results with human serum in the contagious disease department of the County Hospital last summer were similar.

As a real test of the value of the human serum two cases in particular in the series of Amoss and Chesney may be cited. In these instances the serum was given previous to the development of the paralysis, but respiratory paralysis set in later and both patients died.

After Treatment—When the period of isolation—five weeks from the date of onset is required by the State Board of Health—has expired, the patient is discharged from the hospital. From this time on one of the most important periods for the convalescent patient occurs. Hope for improvement in a paralyzed limb should not be abandoned in less than two years, if proper treatment is administered.

There should be field nurses especially assigned to follow up all poliomyelitis cases after their discharge from the hospital, and the results of the nurses' investigations should be reported and arrangements made for orthopedic treatment in suitable cases. A still better plan would be the establishment of an orthopedic clinic for after care of all cases who were unable, on account of financial conditions, to have the necessary medical or surgical services required.

General Conditions in Chicago and Elsewhere—Following the severe epidemic of poliomyelitis in New York last year, there is little anticipation of a recurrence there the coming summer. Nevertheless as the New York total (1916 epidemic) was approximately 10,000 cases, it is very evident that the entire number of susceptibles was not exhausted, unless, of course, we are to assume that there was a vast number of abortive cases which went unrecognized.

During 1916 the total number of poliomyelitis cases reported to the Chicago Health Department was, I believe, 285, of which there were 44 deaths or about 15.5 per cent. The death rate in New York was about 26 per cent.

Following the numerous cases reported in Chi-

cago during July and August especially of last year, it was very noticeable that with the advent of cool weather the number of cases gradually declined. So that from October, 1916, to April 1, 1917, there have been in all about 45 cases, an average of slightly more than 7 cases a month.

It has been stated earlier in this paper that poliomyelitis occurs especially during the warm months. Nevertheless some small groups of cases, occurring in the cold months of the year, have been reported as epidemics in foreign countries.

Leake of the U. S. Public Health Service has reported an epidemic, which he says is "the first sharp midwinter outbreak in the history of poliomyelitis in the United States." This epidemic occurred at Elkins and Grafton, West Virginia, there being 38 cases recorded between December 15, 1916, and January 8, 1917. There were 9 deaths in this series, or a death rate of more than 20 per cent. 85 per cent of the cases were under 5 years of age, 56 per cent were males, 44 per cent females; 21 of the families had but one case apiece, five had two and one had three.

Boston and Chicago have been averaging a trifle more than one case a week since January 1, 1917, while New York has been reporting just about twice as many.

In conclusion, it may be said that with the enforcement of the aggressive measures now in vogue, Chicago should have little fear of an epidemic of poliomyelitis the coming summer. Preparedness, however, should be the watchword.

25 E. Washington Street.

CHRONIC APPENDICITIS.*

GEORGE D. J. GRIFFIN, M. D.

Associate in Surgery, Chicago College of Medicine and Surgery.
CHICAGO.

In offering for your consideration the subject of chronic appendicitis, I have made an effort to select a pathological entity that will offer more or less of interest to all branches of the profession. We hear frequently and sometimes to a boresome degree, papers read and discussions framed upon acute appendicitis, its etiology, pathology, symptomatology, diagnosis, treatment and statistics. We do not hear of the chronic variety of the condition and text-books

*Read before the Douglas Park Branch of the Chicago Medical Society, April 17, 1917.

as well as periodicals choose to ignore it or to relegate it to obscurity with a few paragraphs, expatiating in the meantime upon the acute variety and devoting pages upon pages to its various divisions.

I propose to bring to your attention, not a detailed text-book arrangement of the subject, but rather to present for your consideration a few findings that, encountered individually in a patient, would be relegated to the dust-heaps of physical findings.

I believe that a closer scrutiny of a patient who comes to us complaining vaguely of indefinite and multitudinous symptoms, particularly abdominal, will lead us to a more accurate diagnosis. Instead, we are inclined to describe the patient as neurotic and prescribe a placebo, making that farce of all decisions, and concealing our ignorance and reluctance to make a scientific, systematic examination under the term "Neurasthenia." Let me now say, in order to avoid the inevitable criticism, that I do not pretend to diagnose chronic appendicitis and operate upon all vaguely defined conditions. However, I do believe the organ under consideration to be the basic offender in a greater number of gastro-intestinal disturbances than are now diagnosed.

To begin with, it will be useless to expect to find a certain symptom-complex. There is in my experience no definite rotation of symptoms as in the acute variety.

Pain is a variable condition. It may or may not be present, and if absent is not to be considered of negative value in the diagnosis. If present, it is valuable and corroborative. It is usually well localized in the right Iliac fossa, dull, aching and continuous. It may be present for days and then disappear to return later. On the other hand, it may be present and localized, but so indefinite as to make only a subconscious impression upon the individual that he has a right side.

Tenderness, however, I consider to be one of the most important and invariable findings. No matter to what degree present, if there is a chronic inflammation or infection in the organ in question, you will find tenderness. It may be elicited by the slightest palpation and is always definitely placed over the appendix. I use this phrase intentionally and avoid the term "McBurney's point," because the appendix may and usually is held by adhesions, bent, twisted or

contracted so as to remove it slightly from its favored location. So I say, that the tenderness will be found, and found over the appendix. Whether or not the presence of muscular rigidity is determined, depends altogether upon the degree of tenderness. Slight tenderness will bring out no rigidity, except the sudden spasmodic contraction of the muscle at the moment of pain.

Gastro-intestinal disturbances I place next in the order of importance. These may show themselves in diverse forms and usually are the basic reason for the patient consulting a physician. The bowels are constipated, the movements usually being devoid of any semblance of fluid or moisture and constantly requiring the use of laxatives. Rarely does one obtain a history of diarrhea. With the constipation, the ordinary evidences of fermentation are associated, namely flatulence, distention, belching and eructations. A subjective sensation of abdominal distress is complained of. The condition of the patient's stomach is the first thing to direct his attention to himself. Derangement here is manifested by loss of appetite and distress and discomfort after eating. The chemical analysis will show a marked decrease in the acids and a motor insufficiency.

Loss in weight is a fairly constant factor. Indeed, in cases of long duration, the patients present a physical grouping quite characteristic. They are lean and thin and show evidences of defective assimilation and elimination.

Headache is another feature in the varied symptom-complex. It is not the throbbing, painful acute variety but rather of a dull and depressive nature. The one exception that I have encountered to the above statement was in June, 1913. I was consulted by a patient, male, who had been subject to the most violent attacks of headache, always associated with nausea and vomiting. Without going into extensive detail into his history, suffice it to say that the attacks were irregular in onset without prodromes, except that the patient noticed his bowels were always constipated before these attacks. Rest in bed, the administration of analgesics and cathartics, was always sufficient to relieve his condition. With the exception of an overpowering lassitude and weakness for two or three days following, he was evidently none the worse for the attack. He had been under treatment with various physicians for eight years, and his con-

dition had been diagnosed everything from brain-tumor to lues. My first suspicion was that of migraine, but I later discarded that as a possible diagnosis. He was put in a hospital for examination. His blood showed a negative Wassermann, and x-rays of head and gastro-intestinal tract were negative. Gastric analysis showed a total absence of free hydrochloric acid and a combined acidity of 10 and 12 on two successive examinations. Physically nothing was discovered except for a fairly marked degree of tenderness over his appendix. An operation was advised more in the nature of an exploratory laparotomy than anything else. I opened him up and found no pathology any place except in his appendix. This organ was sclerosed and hard. The meso-appendix was gone. His appendix was grown absolutely to his colon from tip to base, so closely indeed that I was compelled to split the peritoneal coat in order to shell it out, like a peanut. Recovery was uneventful and since that time, the patient in question has not had a sign of recurrence of his headaches. Physically he was of the same type that I referred to earlier in the paper.

Operation in this class of cases invariably shows an abnormal condition of the appendix. Likewise, it has been my experience that operation on these cases, invariably has a beneficial effect upon the metabolic activities as well as upon the subjective sensations and physical well-being of the individual. The appendix is found in varying degrees of torsion, with single or multiple adhesions. One other case besides the patient referred to showed an organ adherent along its border to the colon. In this case the distal end was free for about one-half of an inch. This patient was a girl about twenty-three years old, normally well nourished. She had been gradually losing weight for several months so that she was about fifteen pounds under weight and rapidly approaching the physical type referred to. Physical examination of chest and abdomen discovered nothing except a marked tenderness and rigidity over the appendix. Heart and lungs and tuberculin test were negative. I operated upon her September 8, 1916. Her recovery was uneventful and since that time she has regained ten pounds of her lost weight. The atrophic type of chronic involvement is frequently met with. If not operated on these cases progressively grow worse to finally resort to operation at

too late a stage for improvement, because of the tissue changes that have occurred in the stomach and intestines and in their metabolism; or else they become victims of acute attacks that demand surgical interference with the alternative of a possible fatal issue.

In summing up the paper, I would direct your attention to and lay particular stress upon, the following:

1. The constant finding of tenderness and the importance of it in the diagnosis.
 2. The gastro-intestinal condition, subjective, chemical and pathological. In the long standing cases, almost invariably atrophic changes occur. In all cases, a variation of secretory activity is manifest. The older the process, the greater the inhibition of the secretions. Operation in early cases will serve to remove this influence and the secretions usually return to normal. Even in long standing cases, an improvement in the secretion is found. The removal of the appendix removes the source of the infection, and in removing the source of infection, one removes also the production of toxins to be absorbed.
 3. The lean, cadaverous type of individual in the cases of months' duration.
 4. The constant pathology in the appendix.
- 25 East Washington Street.

ANTISEPTICS AND GERMICIDES— THEIR USES AND ABUSES.*

S. J. RUSSELL, M. D.
CHICAGO.

A little over a half century ago, Sir Joseph Lister was the first to make practical use of antiseptics and germicides. Since then they have become so universally used by the medical profession as well as the laity, that I have chosen this subject for my paper, hoping it may prove of some value to the busy practitioner.

Antiseptics may be defined as chemical substances which suppress certain functions of microorganisms, inhibiting their development but not killing them.

Those agents, whether physical, chemical, or mechanical, which kill the microorganisms, are known as germicides or disinfectants which two terms are synonymous.

Before discussing the methods of action and

*Read before the Englewood Branch, Chicago Medical Society, Feb. 6, 1917.

relative values of these agents, I will very briefly review a few of the most important facts of microbiology.

Microorganisms are unicellular structures having a more or less well defined cell membrane. Through this membrane diffuse, in solution, the substances which act as food to the cell, and those which the cell is excreting. Water diffuses through it more rapidly than substances in solution, and some substances will not diffuse through it at all. The bacterial cytoplasm is made up in part, of protein, which, under certain conditions, coagulates. When so coagulated the protein is permanently altered, and an organism whose cytoplasm is altered, is dead.

Many of the disinfectants act by coagulating the bacterial cytoplasm, and in the case of heat, surely, and probably in the case of chemical disinfectants, the ease with which the protein becomes denatured depends to a large extent on its water content, and all chemical disinfectants act best in watery solution. Solutions in absolute alcohol or oils, usually have slight, if any, bacterial value.

Agencies having an injurious influence on microorganisms may be divided into three groups: 1, mechanical, 2, physical, 3, chemical.

Under the first heading we have filtration, centrifugation, trituration, and shaking. The first two cannot be properly included, as they simply remove the germs, but painstaking trituration of dried bacteria with sand will destroy them, as may prolonged shaking kill the microorganisms, but this process must be far more vigorous than the occasional shakeups in the police department.

Of the physical agents, the direct rays of sun have a very decided bacterial effect. Roentgen rays and radium emanations have almost no germicidal effect, although able to exert a certain amount of antiseptic action.

Cold, in the majority of instances, has but little germicidal effect, but its antiseptic power is very marked. A few bacteria such as the gonococcus and pneumococcus are easily killed by low temperature, but infected water is practically unaltered, and such germs as the staphylococcus and typhoid bacillus are not killed even at the low temperature of liquid air (-190°C).

Pressure has but slight effect upon germs; a pressure of from two to three thousand atmos-

pheres affects the streptococcus but very little. High temperatures kill the germs by coagulating their protoplasm. Boiling water will kill anthrax spores in five minutes.

Of the chemical agents there are a great number, but I shall only mention a few of the most important. The ideal chemical disinfectant should possess certain characteristics.

1—It should have high value in dilute solutions.

2—It should be freely soluble in water.

3—It should have unlimited action.

4—It should have low toxicity.

5—It should have no injurious action.

6—It should have no bad or lasting smell.

7—It should be cheap. None of those known at present can be considered truly ideal.

Bichloride of mercury is one of the most important of the chemical disinfectants, but its usefulness is limited by its poisonous qualities. A 1-40,000 solution will kill bacteria, but a 1-80,000 solution will kill tissue cells. Corrosive sublimate 1-500 will kill any spores in a few seconds, and a solution of 1-1,000,000 in water has certain antiseptic properties. Of the silver salts the nitrate is the most important. When used in serum it is five times as strong as corrosive sublimate. A large number of silver compounds, such as argonin, protargol, argyrol, etc., are on the market. Argyrol 1-100 will kill bacteria, but a 1-200 solution will kill tissue cells.

Calcium hydrate is a cheap and effective disinfectant. As a whitewash it has killed anthrax spores on walls.

Bleaching powder is a mixture of hypochlorite, calcium chloride, and calcium hydrate. Contrary to general belief, its action is one of oxidation and not of chlorination, the active ingredient being the hypochlorite. A 1-1000 solution sodium hypochlorite will kill bacteria, but on the other hand a 1-200 solution will destroy tissue cells. The so-called Dakin's solution has been so extensively described in the newspapers that I feel it unnecessary to offer any comment.

The germicidal power of alcohol has been a matter of dispute, but it is now generally believed that 70 per cent solution has the highest value. Absolute alcohol has practically no value, its action is merely a dehydrating one, and in addition is limited by the precipitate it forms.

Alcoholic solutions are frequently valuable for

skin disinfection, since they dissolve out the oils of the skin which are a protection to bacteria. A solution of alcohol 1-1 will kill bacteria, but on the other hand, a 1-5 solution will kill tissue cells.

Formaldehyde is very extensively used; formaldehyde and ammonia unite to form a product which is on the market under many names as urotropin, formin, etc.

A 5 per cent. solution of carbolic acid is stronger than a 1-1000 solution of bichloride of mercury. At the usual temperature anthrax spores are not killed even after many days by a 7 per cent solution, which is the saturated aqueous solution. Such a solution will kill some spores, however, and is stronger than the liquified phenol which contains about 90 per cent carbolic acid. This is due to the very low water content of the latter, and is similar to the action of absolute alcohol.

A 1-100 solution of carbolic acid will kill bacteria but tissue cells are killed by 1-200.

Thymol is a powerful antiseptic. A solution of 1-1000 kills the pyogenic cocci in 15 minutes. It has come into use in the form of a concentrated solution in alcohol as a method of disinfection of the skin preparatory to a surgical operation.

Iodin in alcoholic solution as the U. S. P. tincture will kill anthrax spores in one minute. A 1-2000 solution of iodine will kill bacteria, and a 1-1250 will kill tissue cells; hence this is the only known germicide more fatal to bacteria than to tissue cells.

Chlorin in watery solution is the most powerful of the known germicides. A 1-1000 solution kills anthrax spores in a few seconds.

As I stated before, none of the known chemical disinfectants are ideal, but those belonging to the halogen group have given me the best results.

In conclusion I wish to call attention to the fact that all chemical substances having an antiseptic or germicidal effect, will either inhibit the function of, or entirely destroy the tissue cells, a fact to be remembered when treating wounds.

Antiseptics or germicides will also inhibit the action of, or entirely destroy digestive ferments (hydrochloric acid and pepsin excepted). For this reason any kind of a preservative in food must necessarily be injurious, nor should any antiseptic be given internally while digestion is at its height.

SUMMARY.

1. Antiseptic or germicidal agents act best in watery solutions, and in the absence of organic matter.

2. All antiseptics or germicides retard function of, or even kill tissue cells.

3. All antiseptics retard the action of, or entirely destroy digestive ferments.

4. Iodin is the only germicide that will kill bacteria without at the same time destroying the tissue cells.

5. Permangol belonging to the halogen group in watery solution is one of the most powerful germicides known.

BIBLIOGRAPHY

Journal A. M. A., Oct. 28, 1916. Ref. Handbook Med. Sci., Vol. III, 1914.

"SAFETY FIRST" IN ANESTHESIA.*

THOMAS L. DAGG, M. D.

Anesthetist to St. Luke's Hospital. Consulting Anesthetist to Illinois Central R. R. Hospital,

CHICAGO

It is a well known fact that in every line of industry the law compels the installation of safety devices for the protection of human life. "Safety First" has become a slogan of national importance, and has contributed perhaps more than any other one thing to the protection of human life upon the railroads and other great industries of this country. In appreciation of this slogan of safety first so prominently displayed on the Illinois Central System of railway, I feel that we of the medical and surgical department of this great railroad should not be behind time in bringing to our department factors of safety first which may be practically applied for the benefit of the sick and injured employe. My specialty of anesthetics in surgery is perhaps quite limited, as compared with the various angles which the surgeon has to consider in the management of his cases, or of the various complications coming under the care of the internist in his medical treatment. But after an experience of fifteen years devoted largely to the study and administration of anesthesia, my interest in the subject grows with the added responsibilities which experience places upon the anesthetist. For I am convinced that a large number of patients die upon the operat-

*Read before a meeting of the Joint Association of Surgeons of the Illinois Central Ry. and the Yazoo & Mississippi Valley Ry. companies, held at New Orleans, March 30 and 31, 1917.

ing table every year from preventable causes; and that a saving of life in this respect demands the attention and the encouragement of every surgeon and every internist who refers his operative cases.

From the standpoint of the anesthetist, the preventable causes of death may be divided into three groups:

1. Those due to the particular anesthetic agent.

2. To the improper administration of it.

3. Other causes which are inherent in the patient himself, either pathologic or physiologic, which may be ascertained beforehand and corrected or guarded against by the anesthetist who is alive to his responsibilities and who appreciates the importance of "Safety First."

To illustrate the first group, the anesthetic agent: This may be only a contributing cause. But even to that extent it is worthy of careful consideration. I have always held to the axiom, that the less toxic any anesthetic drug is, the safer it is. Up to eighteen years ago ether and chloroform in this country were about equal in popularity as anesthetic drugs. Then the postoperative effects of the latter began to be noted. And since 1905, when Bevan and Favill reported the first investigations in America of the pathologic findings in cases of late chloroform poisoning, others have followed in the meantime, until today it has rightly become the most unpopular of our anesthetic agents. And the Committee on Anesthesia of the American Medical Association in 1912 spoke of the use of chloroform as being no longer justifiable in either major or minor operative work. Therefore, I am of the opinion that chloroform, on account of its well known toxic properties, particularly its latent effects of fatty necrosis of the liver, causing death, should be discarded from the list of anesthetic drugs by all who consider safety first in their creed.

That ether, too, has a toxic effect upon the system is shown by the system's intolerance to it. Nature rebels in every possible way against it; and every function of the body is reduced in efficiency in trying to eliminate it. The lowered immunity of the system against infection by the use of ether has been shown by Graham. Its slow elimination by the kidneys, its irritating effect upon the lungs and mucous membranes, and its depressing effect upon the patient for

days following its administration are the common clinical experience of every medical man. And these things are due to the toxic qualities of the drug itself. So that no matter how skillfully ether or chloroform is administered you still have that postoperative toxemia to contend with which becomes a handicap to the patient in convalescence. And if that patient has had prior to operation a nephritic kidney, a hemolytic jaundice, a starvation acidosis, or some other complication which might easily be present, the additional toxemia of the anesthetic drug would contribute to or be the cause of a death otherwise avoidable.

The second group of preventable deaths, due to the improper administration of the anesthetic, to my mind, presents the real tragedies of the operating room. A patient is brought into the hospital for a minor operation; he is put asleep by ether, chloroform, or even gas, in the hands of a junior interne who has just entered upon his duties. The patient dies from acute dilation, from asphyxia, from a prolonged acidosis, or from apoplexy, whereas if his physical condition had been determined beforehand it would have precluded the possibility of a general anesthetic, or would have suggested at least the precaution of the use of a local infiltration instead. The responsibility for such a death can not be laid upon the interne. It is due to the lack of appreciation of safety first, not only on the part of the hospital management, which continues the time honored and ancient custom of conferring upon the raw recruit who enters as a junior interne a responsibility second only to that of the surgeon's work; but this lack of appreciation extends back to the medical schools of our country where, in the large majority of cases, the training of students in the art of anesthesia and the practical application of it has no place whatever in the school curriculum. And it constitutes one of the greatest defects in our medical training today.

To illustrate the third group of preventable deaths, viz: causes inherent in the patient which may be ascertained beforehand and which may therefore be prevented or guarded against. The inherent causes may be divided into two classes: (a) pathologic, (b) physiologic.

- (a) The pathologic class may be illustrated best in the prostatectomies of very old men. I believe that a large per cent of our fatal cases following

prostatectomy in these patients could be saved if proper and painstaking precautions are used preliminary to operation. As a rule their metabolism and elimination are slow and faulty and they easily become auto toxic. Where this condition exists, acidosis is practically always coincident with it, and a patient in this condition is sure to be not only an anesthetic risk to a dangerous degree, but he is also a decidedly bad surgical risk with the chances against him for post-operative recovery should he survive the anesthetic. Therefore, rest in bed for a few days prior to operation is essential for these cases. At the same time their elimination should be encouraged, their true kidney function should be determined, the urine examined for acetone bodies, and if acidosis be present alkaline medication, catharsis and large quantities of water given until this condition disappears; or salt solution and sodium carbonate by transfusion may be given (the so-called Fischer's method, which consists of 0.7 per cent chemically pure sodium carbonate in physiologic salt solution), by which the acidosis is probably most quickly combated.

0.5 to 0.7 per cent glucose solution per rectum is also beneficial in these cases to which the sodium bicarbonate may be added instead of transfusion by the Fischer's solution.

Then when the patient comes up for operation, a preliminary medication of morphia is usually sufficient to allow the operation of prostatectomy to be done under gas and oxygen alone. The length of operating time is always a factor in handicap cases, but especially is it true in these old men who so easily become toxic that a short operating time is important to their recovery and safe convalescence.

(b) The physiologic inherent causes of preventable deaths, may be illustrated by taking a case of severe traumatic shock with which you as railroad surgeons are all familiar. Regarding the various theories as to how shock is produced, we need not be concerned with that phase of the subject where we are confronted with a case of shock already produced. For then it is a question of how best to conserve our patient from further shock damage while the repair to his injuries is being attended to. By shock damage we mean a further lowering of the vital centers by exhaustion of nerve and brain cells from over stimulation by pain from the trauma

produced or the pain consequent to the surgical repair work which is being done.

Therefore, while a patient is in a condition of shock, prevention of pain is a prime consideration. And if to prevent pain in these cases of shock anesthesia be demanded, it becomes the surgeon's duty as well as the anesthetist's, to abolish pain reflex by agents which are least harmful to the patient, stimulating if possible rather than depressing his already exhausted vitality. I believe in the hypodermatic use of morphia as a helpful agent in conserving a patient from shock damage on the theory of Crile, that damage is due to over stimulation and consequent exhaustion of nerve cells by the traumatic stimuli. I believe that shock damage is also further controlled in operation by the anoci-association methods of this same authority. And when these preliminaries are combined with quiet manipulation, the stimulation of warmth, and possibly a salt or blood transfusion if there has been great hemorrhage, we can proceed with anesthesia by nitrous oxide gas and oxygen with practically no further shock damage to the patient while the operative repair of his injuries is being carried out.

These two classes of cases serve to illustrate what may be done in the way of preparation prior to the administration of the anesthetic, as contributing toward the success of the latter as well as to the safety of the patient's life. As to the different methods of anesthesia and the choice of anesthetic in a given case, I do not believe it is wise nor even possible to make one kind of anesthetic agent fit every case.

Everything else being equal, however, and with no especial indication for any particular anesthetic agent or method of administration, I always give nitrous oxide gas and oxygen the preference because of its harmless effects upon the patient, its quick elimination, a rapid return to consciousness, which I am sure we are all delighted to see after a prolonged and serious operation, the absence of those long hang-overs of nausea and vomiting, and the early stage of beginning convalescence as compared with that of other anesthetic agents.

Now I do not want to give the impression that I am opposed to other forms of anesthesia, for I am not. But I look upon ether, chloroform and the drugs used in spinal anesthesia as toxic drugs, requiring days for their elimination through the

various organs of the body, while I regard the proper use of nitrous oxide gas and oxygen as non-toxic, their complete elimination from the system requiring hours instead of days and with no harmful after effects upon the organs of elimination. There are cases, however, where it might be a distinct advantage to use ether rather than gas. I refer to head and face cases where there would arise one of two objections to gas. Either the anesthetist with his mask would be in the way of the operator, or if work was being done in the mouth it would be impossible to maintain anesthesia by gas owing to inability to exclude the air. In such cases I prefer to use ether either by a nasal tube or by endo-pharyngeal or endo-tracheal methods, the ether vapor being forced in by positive pressure.

Another illustration of ether preference over gas might be found in some of our thyroid cases. In a case of exophthalmos, for instance, with extreme nervous tension and fear of the predominating element, I find that the oil-ether per rectum anesthesia of Gwathmey is of decided advantage. Its advantage lies in the fact that anesthesia can be induced without the patient knowing it. She simply goes asleep in her bed following, to all intents and purposes, an ordinary enema; and her thyroid is stolen while she sleeps. We have used this method at St. Luke's Hospital during the past three years in various operations about the head and neck, and find it useful because it gives a clear field for the surgeon and his assistants to work; also because it allows greater freedom of posture of the head, as in mastoid or brain surgery, where the head is often in the position of face downward, thus making it difficult to maintain anesthesia in the ordinary way. This method may also be used to advantage in cases of lung complication, as asthma, bronchitis, emphysema, pneumothorax, consolidation, etc., since the irritation of the ether vapor in the respiratory tract is done away with.

Indeed, this method of rectal anesthesia need not be confined to operations about the head, but may be used generally, except when the operative procedure involves the gastro intestinal tract. I would not advocate its general use, however, as being superior to other methods unless the other methods were contraindicated by some conditions as mentioned above.

It might be well right here to review the tech-

nique of oil-ether per rectum anesthesia, although I am sure it is already familiar to most of you.

The patient is given a cathartic the night before, say at nine o'clock, either castor oil or comp. licorice. Four hours previous to operation a plain enema is given. This is repeated in two hours, the last one being more of a colonic flush, and continued until return is clear. The success of the anesthesia depends largely upon the thoroughness with which the lower bowel is cleansed out by this second enema, as it requires a clean mucous membrane in order to get sufficient absorption of the oil-ether for anesthetic purposes. In addition to the colonic flush the patient should be given a preliminary of morphia with atropin sulph. one hour before operation. Depending upon the size and age of patient from $\frac{1}{8}$ to $\frac{1}{3}$ gr. of morphia with atropin 1-150 gr. should be given. In large, strong, healthy adults I like to use two doses of 1-6 gr. each, a half hour apart, as the divided dosage seems to work better than a single large dose.

I have also used a combination of scopolamine and morphia, but I believe the scopolamine produces too profound a sleep, which lasts too long after the anesthetic agent has been withdrawn, to render it safe as a routine procedure. For example, a patient being operated on for carcinoma of the jaw requiring resection, etc., when the swallowing muscles are impaired, should be awake or semi-conscious before he leaves the table. If put to bed while still unconscious there is no control of swallowing, and consequently a grave danger of inhalation pneumonia from the slow bleeding in the mouth and the septic material always present in such cases. Scopolamine would be contraindicated in such a case.

After the preliminary hypodermic of morphia one hour before operating time the patient rests for 45 minutes; then the oil-ether is introduced per rectum for anesthesia. The proportions of oil and ether are 25 parts oil, 75 parts ether. I use for mixing an ordinary baby's feeding bottle of 8 ounces capacity. One may use either olive oil or cotton seed oil, the latter being cheaper and just as good. Pour in 2 ounces of oil; then add ether up to 8 ounces. Cork and shake the mixture thoroughly. Then, with patient in Sims position and a soft rubber catheter introduced about 4 or 5 inches into the rectum, allow contents of bottle to run in slowly, say one ounce per minute, or a little faster. The quantity to

use is determined by the patient's body weight, one ounce of oil-ether for every 20 pounds of body weight, but in no case use more than 8 ounces.

Frequently the patient is asleep by the time it is all introduced. More often there is a short stage of excitement, the patient gradually quieting down to surgical narcosis. A towel thrown over the patient's head and face, so as to retain a portion of the expired air, seems to hasten the stage of anesthesia. Perhaps in fifty per cent of cases a mask and a few whiffs of ether are necessary to get them past the second stage and into surgical anesthesia, when the mask may be removed and the face left covered by a towel. The patient, of course, must be watched by the anesthetist throughout the operation for any untoward symptoms, as too deep anesthesia, depressed respiration, an obstructed air way, etc. In case of emergency the bowel should be emptied at once of all oil-ether, and washed by plain water repeatedly, while at the same time all other precautions are taken as are in use in ordinary cases.

At the end of the operation the bowel is emptied by passing an ordinary colonic tube from 4 to 8 or 10 inches carefully into the bowel and while gently massaging the colon allow the contents to return into a basin, noting the quantity returned before flushing the bowel with wash water. In this way one gets an approximate idea of how much has been absorbed of the ether during anesthesia. After flushing the bowel several times with plain, cool water, I finally introduce 2-4 ounces of olive oil or cotton seed oil, allowing that to be retained, and the patient is put to bed. As to postoperative nausea, it is rare, although I have had it, in two of my cases particularly, where it was intense as well as prolonged. I have had no untoward complications in my patients due to this method of anesthesia, such as cramps, rectal irritation or bleeding. And I can not account for the unusual amount of nausea in the two cases above mentioned.

I would mention, as a precaution, that the patient should be questioned beforehand, or examined, as to the presence of hemorrhoids or other rectal irritation, colitis, etc., as any of these conditions would, of course, contraindicate the use of this form of anesthesia.

In the foregoing we have referred only to cases

requiring special consideration, or special methods of applying anesthesia. I am aware, of course, that the great volume of surgical work requires only what we term the routine anesthetic. In other words there is nothing about the majority of surgical cases demanding special methods to meet their particular case other than a safe, comfortable and at the same time least harmful anesthetic.

To this large body of surgical cases I would apply the gas-oxygen-ether combination by the closed method, with the use of ether in the combination only when necessary to obtain results not safely obtainable with gas and oxygen alone.

With the hypodermatic use of morphia, $\frac{1}{4}$ to 1-16 gr. as a preliminary, my experience with the average case is that 75 to 90 per cent of the operating time can be done with gas and oxygen alone. The other 10 to 25 per cent of operating time is done under gas, oxygen and ether combined, by the closed method with partial re-breathing, the ether vapor warmed with the gases at least to room temperature before it reaches the patient. This method of course requires a special apparatus for proper administration. It certainly requires a more efficient apparatus and a more efficient technique than the old fashioned wire mask with a piece of gauze over it and a can of ether in the hands of a junior interne or some other raw recruit like a trained nurse. But is it not worth while from the standpoint of efficiency? And is it not worth while from the standpoint of safety first? Has not this great railroad system, to which you gentlemen have contributed your surgical mite, acquired its greatness and its high standing among the railway systems of the world entirely through its persistent effort toward efficiency of the highest order? The inexperienced and the inefficient in a great organization like this haven't got a ghost of a show, for efficiency is the watchword always with the management, and so it must be in the surgical department.

In conclusion allow me to summarize and bring out a few of the points I have endeavored to make clear to you.

1. Safety first demands that the preparation of a case of anesthesia is just as important to the patient as the proper selection and administration of the anesthetic itself.

2. Such preparation consists in finding out the true status of a patient's physical condition,

both pathological and physiological and correcting as far as may be done those conditions before operation.

3. Safety first demands that the anesthetic and method of administration should be adapted to the patient, and not the patient to the anesthetic. In other words, no hard and fast routine procedure.

4. Patients in traumatic shock should be protected from further shock damage as far as possible while surgical repair to the trauma is being carried out.

5. Patients in a state of autotoxemia or acidosis should undergo a preliminary preparation of rest and elimination before the administration of anesthesia.

6. Safety first demands the selection of a proper anesthetic for the case in hand, as well as the most approved method for its administration as a factor of first importance in good surgery.

And that surgical organization proves best which proves most efficient not only in surgical skill but also in the efficient team work of the surgeon's assisting staff; and the most responsible member of that assisting staff should be the efficient anesthetist.

25 E. Washington Street.

Auto Sparks and Kicks

AVOID THIS REAL "AUTO SPARK"

IF YOU DON'T YOU WILL HAVE NO "KICK" COMING

When a resident of Dubuque, Iowa, wearing a fur coat and rubber boots, walked hurriedly to his garage on a cold morning recently, he did not realize that his movements were storing up a dangerous amount of electricity in his body. But the fact was, says *Popular Mechanics*, that the friction of his arms against the coat caused a certain amount of static electricity to be generated, and this was stored in the man's body because it was insulated from the ground by his rubber boots. When he sought to prime the motor of his car with a mixture of gasoline and ether, using a metal squirt can—probably of copper, which is a good conductor of electric current—the can was brought so close to the motor that a spark was produced between it and the priming cup, igniting the gasoline. The can exploded, throwing the flaming liquid over both man and car. The man escaped with severe burns, but the car and garage were completely destroyed.—*Exchange*.

LUBRICATION CAUTION.

The value of lubrication to such an intricate piece of mechanism as an automobile cannot be overestimated. The inexperienced may think it is simply necessary to shoot a little grease or oil in every hole they see and let it go at that. That is good—for the repairman and seller of grease and oils. Mighty careless treatment, however, for such a valuable assistant to man as an automobile.

The value of graphite as a lubricant for automobiles has long been proved.

There is no such thing as a good, cheap graphite lubricant.

BALL BEARINGS AND GRAPHITE.

Professor Goss, Dean of Engineering, University of Illinois, says: "The mixture of flake graphite with either a liquid or viscous lubricant serves both to reduce the friction and to increase the possible load which a ball bearing thus lubricated can be made to carry."

Mr. F. J. Jarosch, chief engineer, Bearings Company of America, and a well-known authority on ball bearings, states: "The best way to overcome these difficulties seems to lie in the use of oils and greases mixed with graphite. The graphite used must be extremely fine and pure and prepared by the manufacturer with this particular use in view. Experiments have proven that a selected variety of finely ground flake graphite is best suited for this purpose. Because of its form it adheres firmly to the bearing surfaces, and because of its toughness it forms an enduring film."

How poor are they who have no patience. What wound did ever heal but by degrees.

What do we live for if it is not to make life less difficult for others?

Sunlight and sanitation, not silks and satins, make better babies?

Low wages favor high disease rates?

A female fly lays an average of 120 eggs at a time?

Neither the sun nor death can be looked at steadily.

Love that has nothing but beauty to keep it in good health is shortlived.

ILLINOIS MEDICAL JOURNAL

Published monthly by The Illinois State Medical Society, under the direction of the Publication Committee of the Council.

GENERAL OFFICERS, 1917-18

PRESIDENT.....E. B. COOLLEY, Danville
 PRESIDENT-ELECT.....E. W. FIEGENBAUM, Edwardsville
 FIRST VICE-PRESIDENT.....E. P. SLOAN, Bloomington
 SECOND VICE-PRESIDENT.....SADIE BAY ADAIR, Chicago
 TREASURER.....A. J. MARKLEY, Belvidere
 SECRETARY.....W. H. GILMORE, Mt. Vernon
 (Ex-officio Clerk of the Council)

THE COUNCIL

District 1—EMIL WINDMUELLER, Woodstock.
 District 2—EDWIN S. GILLESPIE, Wenona.
 District 3—CLYDE D. PENCE, Chicago.
 District 4—AUGUST H. ARP, Moline.
 District 5—C. S. NELSON, Springfield.
 District 6—C. D. CENTER, Quincy.
 District 7—C. F. BURKHARDT, Effingham.
 District 8—C. E. PRICE, Robinson.
 District 9—FRANK C. SIBLEY, Carmi.
 CLYDE D. PENCE, *Chairman*, 3338 Ogden Avenue.

Send original articles and all communications relating to advertisements and mailing list to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue.

Membership correspondence to Dr. W. H. Gilmore, Mt. Vernon, Ill.

Society proceedings and news items to Dr. Henry G. Ohls, *Managing Editor*, 927 Lawrence Avenue, Chicago.

Contributors will submit all copy for publication typewritten on standard size paper and double spaced. Copy not complying with this rule will be returned, if convenient.

MEDICO-LEGAL COMMITTEE

ANDY HALL.....Mt. Vernon
 WILLIAM O. KROHN.....Chicago
 GEORGE STACY.....Jacksonville
 D. R. MACMARTIN.....Chicago
 C. B. KING, *Chairman*.....3938 Jackson Blvd., Chicago
 THOMAS D. CANTRELL, *Secretary*.....Bloomington

GENERAL COUNSEL

ROBERT J. FOLONIE.....39 S. La Salle Street, Chicago

State society will pay no bills for legal services except those contracted by the committee. Notify the Chairman at once. Don't employ attorneys.

JUNE, 1917

Editorials

THE BLOOMINGTON MEETING.

Another anniversary in the life of the Illinois State Medical Society has passed. The annual meeting held in Bloomington was in all ways a success. The officers of the Society anticipated a light attendance because of the war conditions, but were agreeably surprised by a larger registered attendance than at last year's session.

One of the most notable features of this year's meeting was the increased attendance at all sessions of the scientific sections; not in years, if ever before, were the general sessions so largely attended.

That the medical profession of the state is alive to the situation which confronts our government, and that it will go to the front and do that which can be reasonably expected of it, was demonstrated when Dr. Kreider addressed the

Society. The members of the Society will "do their bit."

The various reports of the Society showed that in no year have the committees been more active or accomplished more. The outgoing president, Dr. W. L. Noble, and the members of the legislative committee must be commended for the efficient legislative work accomplished. Never before has the Society been so ably represented, or has it ever attained the prestige before any legislature as it has during the life of the present assembly.

It was felt by every member present, but more particularly by the officers of the Society, that the Society is facing another crisis, approached only by one other in its history. That there will be a demand on the Society by the government which will severely tax its strength, but few doubted. This, the incoming president, Dr. E. B. Coolley, feels keenly, as intimated in his inaugural address to the Society. Let us hope that before another annual session this crisis will have passed and left not even a shadow.

Springfield was chosen as the place of meeting for 1918. Springfield is holding next year a centennial anniversary, celebrating the birth of Illinois as one of the United States, and at the same time celebrating the wonderful industrial growth of the state. The city especially wished the Society to meet there next year and participate in its centennial.

The newly elected officers are as follows:

President-elect—E. W. Fiegenbaum, Edwardsville.

First Vice-President—E. P. Sloan, Bloomington.

Second Vice-President—Sadie Bay Adair, Chicago.

Treasurer—A. J. Markley, Belvidere.

Secretary—W. H. Gilmore, Mt. Vernon.

Councilors—First district, Emil Windmueller, Woodstock; second district, E. S. Gillespie, Wenona; eighth district, C. E. Price, Robinson.

Delegates A. M. A.—Don Deal, Springfield; alternate, A. L. Mann, Elgin. R. R. Ferguson, Chicago; alternate, W. O. Krohn, Chicago. C. J. Whalen, Chicago; alternate, C. B. King, Chicago.

Public Policy—Sadie Bay Adair, Chicago; C. W. Little, E. St. Louis; H. N. Rafferty, Robinson.

Education (1 to elect)—Martin M. Ritter, Chicago.

Legislation—Don Deal, Springfield, chairman; N. M. Eberhardt, Chicago; R. L. Morris, Decatur.

Medico-legal—W. O. Krohn, Chicago; Geo. H. Stacy, Jacksonville.

Section on Surgery—John S. Nagel, chairman, Chicago; H. A. Millard, secretary, Minonk.

Section on Medicine—C. Martin Wood, chairman, Decatur; S. R. Slaymaker, secretary, Chicago.

Eye, Ear, Nose and Throat—J. Sheldon Clark, chairman, Freeport; Wesley H. Peck, secretary, Chicago.

Public Health and Hygiene—Grace Campbell, chairman, Chicago; secretary, W. E. Park, Rockford.

Secretaries' Conference—Flint Bondurant, president, Cairo; T. D. Doan, vice-president, Scottville; F. C. Gale, secretary, Pekin.

RESOLUTIONS PASSED BY THE HOUSE OF DELEGATES.

The Section on Public Health and Hygiene adopted the following resolution under date of May 9th, 1917:

Resolved, That the House of Delegates, in regular session assembled, by its voice appreciate and by its vote commend the actions of the Forty-ninth and Fiftieth General Assemblies, the Governor of Illinois, and the head of the new Department of Public Health for the practical and beneficial legislation affecting hygiene and public welfare, advanced and furthered by them.

Respectfully submitted,
(Signed) BAYARD HOLMES,
J. W. VANDERSLICE,
M. W. SNELL,
Committee.

WHEREAS, A call has been issued for physicians to serve in the United States army and navy; be it

Resolved, That we pledge ourselves to support the government in every way possible, and to do our part in this crisis which now confronts the nation.

(Signed) CHAS. C. O'BYRNE,
J. J. ROACH,
G. H. STACY,
J. A. CLARK,
C. E. PRICE,
Committee.

WHEREAS, A great crisis now exists in America, and many physicians are being called to the service of their country; therefore, be it

Resolved, That the neighboring physicians care for the patients of such absent physicians, return him to him or his family 50 per cent of the money received therefor, and return such patients to the physician upon his return.

(Signed) C. C. O'BYRNE,
J. J. ROACH,
G. H. STACY,
J. A. CLARK,
C. E. PRICE,
Committee.

Resolved, That the House of Delegates of the Illinois State Medical Society, now in session at Bloomington, Ill., demand that Congress take immediate action to protect men who are drafted or who may volunteer for military duty by a

moratorium, protecting their vested interests until the termination of the war.

(Signed) GORDON G. BURDICK.

Resolved, That the medical profession of the State of Illinois appreciate the noble work done by the House sub-committee during the past session, and that the president of this society send a letter of thanks to the following members of the legislature and to the physicians representing the state society:

House Sub-Committee and Judiciary Committee: Messrs. Ralph E. Church, F. R. DeYoung, W. H. Dieterick, Guy Guernsey, H. W. McDavid, E. J. Odum, E. D. Shurtleff, T. A. Snell. Doctors: C. St. Clair Drake, W. L. Noble, E. B. Cooley, A. D. Bevan and Don Deal.
(Signed) J. A. CLARK,
C. E. PRICE,
C. C. O'BYRNE,

STATUS OF PENDING LEGISLATION.

NEW MEDICAL PRACTICE ACT.

The model medical practice act, in which Illinois physicians have taken great interest and for which they have worked throughout the greater part of the session of the General Assembly, will, in all likelihood, become law on July 1, 1917.

This bill has been through the house, on third reading receiving 126 affirmative votes, none opposing. On reaching the Senate it was immediately advanced to second reading without reference to committee, Senator Barr fathering the measure.

Not until the bill reached second reading in the Senate did any opposition to the measure appear: then our friends the chiropractors and the naprapaths joined hands in an attack. With their attorney, they came to Springfield, and, judging from the noise made, one would think that Illinois had several thousand "chiros" and "napras" instead of the few hundred actually licensed. The members of these cults wanted lower educational standards all along the line, and they insisted that the proposed law would deprive the "chiros" and "napras" now licensed of their rights to practice their profession.

The Senate committee was in no humor to consider the plea for lower educational standards, and all such amendments were promptly tabled. There being doubt in some minds as to

the status of the "other practitioners" after the new law became effective, and there being no intention to deprive any licensed practitioner of his rights under his certificate, it was agreed that an amendment should be adopted.

This was done on June 1, and the bill was advanced to third reading in the Senate.

If the present program prevails, the bill will be on third reading in the Senate on June 6. It will, undoubtedly, pass the Senate, and then will be returned to the House for concurrence in the amendment.

When this practice act becomes law, Illinois will stand head and shoulders above any state in the Union in the matter of regulation of the healing art.

MATERNITY INSURANCE.

The bills designed to establish large funds for the purpose of supplying free medical and nursing care to all mothers and their infants for one year following birth have been killed.

FEE SPLITTING.

The Wright bill, Senate Bill 536, making fee splitting sufficient cause for the revocation of a physician's certificate, slumbers in Senate Committee on Public Health, Hygiene and Sanitation.

EIGHT-HOUR BILL.

Newspapers have it that Governor Lowden wishes the bill known as the Carter bill revived. This bill was put to sleep a short time ago. Possibly in the main it is all right, but there must be exceptions made as regards nursing service in hospitals, or many of the smaller hospitals will go out of existence.

The bill, we understand, was originated by people who are totally ignorant of hospital needs or hospital conditions. The bill, if passed, may be so interpreted as to also create a hardship on the undergraduate nurse. If the bill is passed, it should include the graduate nurse and the domestic servants.

CHICAGO MEDICAL SOCIETY ELECTION.

Chicago medical circles are again interested in an annual election of the Chicago Medical Society. This in itself would not much interest the medical fraternity elsewhere, were it not for one feature of the election, namely, the attempted

introduction of civil politics into medical societies.

It is charged by those in control of the Society that the Health Commissioner is trying to dominate the election of the Chicago Medical Society, and thereby its policies, by building a medico-political machine, and that the service of the medical charity institutions is not being benefited by such endeavors. This, if true, is, of course, a situation which cannot be tolerated by any medical fraternity.

In Chicago a large number of medical men are on the pay roll of the city, and under the directorship of the health officers. This applies to all of the branches of public health service, such as school inspectors, school physicians, tuberculosis dispensary and sanitarium staffs and others.

On the tuberculosis staff alone there are enough physicians to constitute a good sized medical society. These tuberculosis staff men are under the direction of the trustees of the Sanitarium, and are under civil service. The Health Commissioner is ex-officio a trustee of the Sanitarium. Another trustee is a candidate for Councilor at Large of the Chicago Medical Society.

It is unfortunate for the city administration that it must bear the burden of unpopular health officers, who are willing to enforce the Society of their profession to uphold them. The administration has already suffered from the criticisms directed against an unpopular action of the Commissioner relative to the Sanitarium, and this effort of the department head to dominate the medical society will be charged to the policies of the administration. The profession has long been tired of an apparently morbid desire on the part of the Commissioner for newspaper notoriety.

A number of tuberculosis men have found their positions in the Sanitarium untenable, regardless of the fact that they had equipped themselves well for such service, and had taken civil service examinations to procure them. A plan is formed now to fill the dispensary service with another set of physicians who are to serve full time. This ruling will have the effect of depriving the dispensary service of practically all of the men who are specialists in this line, and supplant them with men who are recently graduated, who are without experience and who are not equipped

to render the most efficient service. It perhaps is incidental that many of the men now serving on the dispensary staff cannot be used by the Commissioner's machine.

As offensive as all this may be to the administration and to the medical fraternity, who earnestly wish a clean, efficient medical service in the city institutions, the real burden falls upon the inmates of the institutions.

It is to be hoped that the result of the election will show the Commissioner in no uncertain manner that he cannot use the Medical Society as his political tool.

MOVING THE CLOCK AHEAD.

The movement to save daylight by moving the clocks of the Nation forward one hour during the summer season as a war measure received an important impulse when the Senate Interstate Commerce Committee recommended the passage of the bill.

Perhaps the only universal advantage from such a law is the saving of artificial light. This, however, would be a very great gain, amounting in the aggregate to an immense sum, and a national law would obviate the friction due to conflicting local interests. In fact, when some members of a family are asked to subscribe to a local plan of early hours while the others are expected to follow the present system, it is an undoubted hardship. The following effusion from the *Chicago Daily News* presents this feature very well, but ignores the larger question:

The plan in reality is nothing more than an elaborate device to get people out of bed earlier than they like. There is no law to prevent anyone from getting up early. Certainly there is no better time for recreation, for work in the garden or for other avocations than the morning hours. Getting people out of bed early by act of congress in order that they may go to work an hour earlier than they now go would give them no more time for recreation than they have already. It would merely curtail their personal liberty to a considerable extent.

Employes of the Chicago health department have just voted by a substantial majority not to move their work day an hour ahead. They have studied the plan and have decided that it is more beautiful in theory than in practice. So would a large majority of other workers in all sorts of employments. In the general activities of the community and of the country at large the proposed change would prove tyrannical, unprofitable and generally undesirable.

The so-called daylight saving plan should be applied

personally by everybody who chooses to get up early. There is no other acceptable way.

The fact is, of course, that no one would notice the difference if a national law made the change universal. The present standard time only corresponds with solar time at five meridians throughout the country, namely, the 60th or Colonial, the 75th or Eastern, the 90th or Central, the 105th or Mountain, the 120th or Pacific. Half way between these meridians standard time varies half an hour from solar time. Why not secure the benefit of another hour of daylight?

CAN YOU BEAT IT?



SPASM 1

From Florida Keys comes a doubtful report

Of a wonderful fish that was towed into port.
The monster by Dr. Windmueller was caught:

The Doctor is truly a wonderful sport,
If there's truth in the story they tell.

SPASM 2

When the Sting ray discovered his terrible plight,
He lunged like the Devil, and dived out of sight:

And the teeth of the Doctor set Devilish tight,
As he jerked on the line with his mightiest might,
Such a battle was certainly hell.

SPASM 3

The fish of a sudden jumped high in the air,
And was caught by the tail as he landed up there:

By a friendly old pelican (Gospel I swear).

This help from the pelican doesn't seem fair,
Tho' the Doctor this part doesn't tell.

SPASM 4

But the "Sentinel" seems to accept it as true,
 Tho' that doesn't clinch it, between me and
 you:
 Of ungodly fish stories we've heard quite a few,
 Yet this is a good one, entirely new.
 Dr. Onnen attests it as well.

SPASM 5

Now Dr. Windmueller, just listen we pray,
 To the little suggestion we send you today:
 If the story is true, for the sake of fair play,
 Just send us the tip of the tail of the "Ray"
 In proof of the story you tell.

—*Edwards.*

ILLINOIS SECTION OF THE AMERICAN ASSOCIATION OF INDUSTRIAL PHYSI- CIANS AND SURGEONS.

Recently, in Chicago, the Illinois Section of the American Association of Industrial Physicians and Surgeons was organized to carry on in our state the work of the national association, which was organized in June, 1916, at Detroit, during the session of the American Medical Association.

The following officers and directors were elected to serve for one year: President, Dr. Don W. Deal, of Springfield; vice-president, Dr. Hart E. Fisher, of Chicago; secretary-treasurer, Dr. John Dayhuff Ellis, of Chicago.

Directors: Dr. A. M. Harvey of Chicago, Dr. W. A. Lucas of Chicago, Dr. A. H. Arp of Moline, Dr. C. G. Farnum of Peoria, Dr. Wilber E. Post of Chicago, Dr. Julius H. Fiegenbaum of Alton, Dr. Harry E. Mock of Chicago, Dr. Joseph DeSilva of Rock Island, Dr. William S. White of Chicago, Dr. Hart E. Fisher of Chicago, Dr. J. Chase Stubbs of Chicago, Dr. Madison of Litchfield.

The purpose of this organization is to foster the study and discussion of the problems peculiar to the practice of industrial medicine and surgery; to develop methods adapted to the conservation of health among workers in the industries; to promote a more general understanding of the purposes and results of the medical care of employees; and to unite into one organization members of the medical profession specializing in industrial medicine and surgery for their mutual advancement in the practice of their profession.

The second annual meeting of the American Association of Industrial Physicians and Surgeons was held in New York City, headquarters at the McAlpin hotel, on Monday, June 4, 1917, the day preceding the meeting of the American Medical Association.

All industrial physicians and surgeons of Illinois who are not as yet enrolled in the membership of the American Association of Industrial Physicians and Surgeons are requested to write to Dr. Harry E.

Mock, Secretary, 122 S. Michigan Avenue, Chicago, for application blanks and any information desired.

Public Health

TORNADO AT MATTOON AND CHARLESTON.

On the morning of Sunday, May 27, the State Board of Health was advised of a cyclone which had destroyed the northern part of the city of Mattoon and a large portion of Charleston, Coles County. By four thirty in the afternoon the secretary of the Board, accompanied by four medical health officers, two sanitary engineers and two sanitarians, were on the ground.

A preliminary survey was made late Sunday afternoon for the purpose of locating all cases of communicable disease, particularly those in the storm-swept section, who had been removed to other portions of the town and to locate those persons who had been exposed to contagion during such removal.

During this inspection four cases of smallpox were found, together with large numbers of cases of measles, many of which had not been previously reported. A number of refugees had been housed in premises under quarantine for smallpox.

Sanitary officers were assigned to supervise the preparation and operation of temporary hospitals, which were established in lodge halls and a vacant hotel building. Sanitary supervision was also assumed over temporary barracks and all persons making application for admission were given medical inspection. Routine daily medical inspection of the inmates of these barracks was established.

Frequent inspections were made of the public emergency kitchens and as a result of the first inspections, large amounts of food shipped in for relief, were destroyed.

Late Sunday and during the day Monday dead animals were removed from the storm swept section and all exposed privy vaults were sealed.

In co-operation with the military authorities, the sanitary officers made a house to house canvass to locate all persons removed from the destroyed homes and to get in touch with all those who were sick or injured and who had not received medical attention. Another object of this house to house canvass was to ascertain the

medical and financial relief needed by the people. During this inspection a number of injured persons were found and were referred to physicians for care.

Altogether there were 486 homes destroyed in Mattoon with 46 persons killed and 400 more or less seriously injured. That part of the city swept by the wind was made up of small houses, most of them owned by the occupants or being acquired through building and loan associations.

The storm damage at Charleston was relatively greater than at Mattoon. Charleston is but half the size of Mattoon and yet the tornado destroyed 250 homes, killed 37 persons and injured 250.

The State Board of Health immediately placed a corps of physicians and sanitarians in Charleston, carrying out the same program that had been adopted in Mattoon.

STATE RELIEF FOR STORM SUFFERERS.

In the wake of the tornado which swept the south-central Illinois on Sunday, May 27th, appeals were made to the General Assembly to appropriate considerable funds for relief purposes. The appeals for several million dollars to entirely rebuild the wrecked homes was not received seriously by either the Governor nor the General Assembly, but there was a general disposition to afford all reasonable aid and assistance.

At a conference between the State health authorities with the Governor and Adjutant General, the following plan of relief and for the expenditure of state funds was proposed and is being favorably considered.

1. That the sanitary authorities be authorized to expend state funds for the employment of those residents of the stricken districts who had been rendered homeless and that these persons be put to work cleaning up both public and private properties.

2. After the destruction is cleaned up, that the state supply tents, cots and bedding, so that each individual may be re-established on his own premises.

3. That the State supply on all premises sanitary installations, including sanitary privies, and that the storm swept districts be policed by sanitary officers until something like normal conditions are restored.

It is felt that this plan is very much better

than that of housing the residents for any prolonged period of time in large barracks, as has been done in the past and as has been suggested at the present time. In this way the householder will receive wages while carrying out the rather expensive work of cleaning his own premises and life in tents with proper sanitary provisions will be more healthful and wholesome than existence in barracks.

It is also believed that getting back on to his own premises will be a great incentive for the reestablishment of the homes.

APPROPRIATIONS FOR THE STATE DEPARTMENT OF PUBLIC HEALTH.

Dr. C. St. Clair Drake, director of the newly created State Department of Public Health, has presented estimates of needed appropriations for the department for the biennium beginning July 1, 1917. While the amounts requested are larger than in past years, increases are made only along the very necessary lines and a number of the features of the proposed plan of reorganization have been held in abeyance until another year on account of the desirability of the most economical administration consistent with efficient service.

Aside from the employment of the director and assistant director, as provided by law, the budget makes provision for a Chief of Bureau of Communicable Diseases, a Chief of the Bureau of Laboratories, a Chief of the Bureau of Tuberculosis, a Chief of Sanitary Engineers and a Chief of the Bureau of Vital Statistics. Provision is also made for directing heads of a subdivision of surveys and rural hygiene and a sub-division of child-hygiene and public health nursing. The total amount asked for the coming two years is \$431,081.00, which is an increase of \$104,973 over the appropriations for the two years just passed.

Paul Hansen, chief of the Bureau of Sanitary Engineering of the State Board of Health, and member of the Federal Reserve Corps of Engineers, has been ordered to Fort Benjamin Harrison for service.

The State Board of Health has been called upon to inspect and assist in the selection of a site for the Adams County Tuberculosis Sani-

tarium, established by the vote of the people at the general election, November, 1916, under the provisions of the Glackin County Tuberculosis Sanitarium law. Plans are being made for the La Salle County Tuberculosis Sanitarium and will be submitted for the approval of the State Board of Health at some time in the future. The tentative plans of the Peoria Municipal Tuberculosis Sanitarium have been passed upon by the Board and have been returned to the trustees with suggestions for essential changes.

The May number of *Health News*, the bulletin of the State Board of Health, is devoted to the construction of sanitary privies and the protection of shallow wells. It is profusely illustrated and is said to be one of the best and most practical publications of the kind ever issued in the United States. On the cover is one of Alfred S. Harkness' striking health cartoons, "Pals—Pump, Privy and Pestilence." It shows a grinning skeleton fondly embracing an old-fashioned privy and a wooden pump.

A unique health publication which will be issued in the near future by the State Board of Health is designed for the doctor's waiting room table and will be made up of cartoons, pictures, epigrams and verse dealing with public health subjects. It will be permanently bound and will bear the caption: "Public Health in Epigram and Picture."

HEALTH DISTRICT ORGANIZATION.

The bill conferring power on municipalities and townships to consolidate for the purpose of developing an efficient health organization, and to impose a special tax for the maintenance of such an organization, has passed the Senate and is now on third reading in the House.

SANITARY ZONE ABOUT MILITARY CAMPS.

An amendment to the military code conferring power on the State Department of Public Health to abate sanitary nuisances within a half-mile zone around all military encampments, doing so if needs be at the expense of the corporation or the individual maintaining such nuisance, has passed both branches of the legislature, and has been signed by the governor.

DIPLOMA FRAUDS SUCCESSFULLY PROSECUTED.

The first of a number of prosecutions instituted by the State Board of Health for fraudulent trafficking in medical college diplomas and state certificates, was heard in the Cook county courts during the last week of May.

Two of the principals were placed on trial at that time with the result that Dr. Amante Rongetti of Chicago was found guilty and fined \$2,000. Dr. Gaetano Ronga, the second party, was acquitted.

The evidence heard in this case involved a number of persons not heretofore indicted in these cases, and action is now being taken to include all such parties in new indictments which are being asked.

The next case to be heard, involving some eleven principals and forty victims or co-conspirators, will be heard during June.

Correspondence

CRITICISM OF REPORT ON HEALTH INSURANCE AND ANSWER OF COMMITTEE.

Chicago, March 22, 1917.

Committee on Health Insurance, Chicago Medical Society.

Gentlemen: I am moved, in the interest of better understanding, truth and fairness, to write you concerning several statements contained in a reprint of a report of the Committee on Health Insurance of the Chicago Medical Society, which appears in the March, 1917, issue of the ILLINOIS MEDICAL JOURNAL.

On page 1 is the paragraph: "While organized labor, the employer of labor, the taxpayer and the physician are the ones most vitally interested in compulsory health insurance, it is interesting to know that all these interests are unequivocally opposed to it."

In answer may I state that the following organized labor bodies have endorsed health insurance legislation:

State Federations—

New Jersey State Federation of Labor.
Wisconsin State Federation of Labor.
Massachusetts State Federation of Labor.
Missouri State Federation of Labor.
Ohio State Federation of Labor.

International Unions—

International Typographical Union.
International Glove Workers of America.
International Union of Steam and Operating Engineers.
International Spinners' Union.
International Brotherhood of Pulp, Sulphite and Paper Mills Workers.
International Ladies Garment Workers' Union.
Amalgamated Clothing Workers of America (General Executive Board).
United Textile Workers of America.

In the resolution passed by the International Union of Steam and Operating Engineers is found the following paragraph: "The findings of the Department of Labor, the Public Health Service, the Federal Commission on Industrial Relations indicate that the best method of protecting the workers against their suffering and losses due to sickness is a governmental system of universal health insurance."

One can easily understand the initial opposition of some employers to a system of health insurance, but to say that all of them "are unequivocally opposed to it" would seem to be going rather wide of the mark. For example, a committee of the American Electric Railway Association, in convention in 1916, presented a report favorable to health insurance, in which it was said, for instance: "The benefits of health insurance can only be made widespread by making insurance compulsory," and further, "Compulsory insurance can best be introduced by the employer making a substantial contribution toward the cost of insurance, considering such a contribution as a part of the wage payment and an element in the cost of production."

The International Association of Manufacturers also in convention assembled, May, 1916, took a friendly position on the subject, going so far as to say that "the plan must contain the elements of compulsion, direct or indirect, as a matter of expediency in securing acceptance of the act."

As to the doctors, one could cite many individuals in the profession who have declared themselves in favor of health insurance. Certainly the favorable opinions of physicians like Dr. W. A. Evans, Dr. Woods Hutchinson, Dr. Alexander Lambert, Dr. Alice Hamilton, Dr. Frank Billings, Dr. F. R. Green, Dr. J. B. Herrick, Dr. H. E. Mock, the late Dr. Henry B. Favill and others, who have studied the broader aspects of the practice of medicine and the social need of large public health measures, are not to be ignored. Surely the favorable attitude of the Council of Health and Public Instruction of the American Medical Association as publicly expressed cannot be considered as "unequivocal opposition."

On page 2 it is said "that poverty is the cause of sickness and not sickness the cause of poverty, as many of our economists would lead us to believe, is not true." Surely, to maintain that no poverty is caused by sickness is to state what is contrary to the experience of charity workers the world over. It is recognized, of course, that much poverty is the cause of sickness, and that, in fact, the process works both ways.

On page 3, the opinion is expressed that when we get to a prohibition era in Illinois, everybody will have money to pay doctor's bills. Is this not a rather wild assumption?

On page 3 also is the flat statement that health insurance is not working out satisfactorily in Germany. The testimony of Dr. George Zacher of Leipzig, the greatest authority on social insurance in the world, seems to be decidedly to the contrary. He points out that actual governmental statistics show

there was an increase in average longevity of German males between 1870 and 1900 equivalent to twelve years of life for every man in the country; furthermore, that not only the general health, but the height, weight, strength and ability of those who were called into the service of the German army in the period stated had shown steady improvement.

Mr. Miles M. Dawson, American social insurance authority, states that in a thorough investigation of health insurance in Germany, he found that this testimony also was given by leading employers, leaders of the Social Democratic party, representing virtually all the workmen of the country and by official representatives of the workmen in the sickness insurance associations.

Critics of the German system and its results, like Prof. L. Bernhard and Dr. Ferdinand Friedensburg, have been effectively answered by Dr. B. Zahn, a recognized authority; by Dr. Paul Kaufmann, President of the Imperial Insurance Office; by the well-known German surgeon, Dr. Otto Hintze, who refers to the charges that health insurance has weakened the Germans' sense of responsibility as "monstrous exaggeration."

On page 5 appears the caption, "Will Not Decrease Poverty." Surely, it would seem reasonable to suppose that if a system of health insurance acts as a preventative of the development of chronic troubles, if it increases physical efficiency and prolongs life, such a system ought to be recognized as a poverty preventive measure. The reliable testimony of German authorities is to the effect that the system in that country has brought such results.

On page 6 is the amazing statement: "It would stop scientific progress in medical research as it has in Europe." I have not at hand authorities to disprove this, but my guess is that leading medical men of Germany would refuse to say that there has been no such progress in that country since health insurance went into effect.

On pages 8 and 9, there is considerable said about the possible pauperizing effect of the health insurance system, with which one can hardly agree. If the working man is made to contribute toward the insurance fund, surely to that extent he is not pauperizing himself. Why not recognize the pooling arrangement of a health insurance system similar to that in effect in the fire insurance field, for instance? Fire insurance surely does not pauperize people who have it. Furthermore, parents certainly do not pay the full cost of their children's education when they pay taxes, and yet we do not consider such families as being pauperized.

On page 9 reference is made to the abuse of dispensary medical service as another argument against health insurance. Certainly, all experience proves that this abuse could be remedied by the managers and doctors in charge of the dispensaries themselves. Under a health insurance plan, many of those who now secure free dispensary service would be paying their share toward the expense of providing medical atten-

tion, and hence to that extent at least would be brought out from under such pauperizing influences.

On page 10 is the statement, "The Social Service Directory of the Public Welfare Commission of Chicago shows there are hundreds, if not thousands, of hospitals, dispensaries, social centers, etc., all giving free medical care at the expense of the physician." As a matter of fact, the directory referred to contains mention of about 800 agencies of every sort an overwhelming proportion of which have nothing to do with the providing of medical service. What sense is there in making the statement quoted?

On page 11 appears a slur upon "associated charities and kindred organizations" in connection with a reference to administrative costs. The statement is made that "it is a matter of record that the administration of such funds — costs over half the fund." This is an absurd statement as far as it applies to organizations of the type of associated charities. It is misleading and in fact, can mean absolutely nothing in the face of the facts.

These are but a few of the thoughts that come to mind after reading your committee's report a couple of times. Other points that are questionable would require more discussion than can be entered into a letter.

I cannot help but feel that the publication of this report by the Chicago Medical Society is unfortunate. Health insurance in which the state will figure in some important manner is bound to come in the United States in the near future. It behooves the medical men to take part in the planning therefor. The resolution already introduced in the Illinois legislature to create an investigating commission on this subject should receive their hearty support. Let us pull together for the common good. This is our opportunity.

If the columns of the ILLINOIS MEDICAL JOURNAL are open to replies to articles appearing therein, I shall be glad to have this letter published.

Very sincerely yours,

(Signed) EUGENE T. LIES.

ANSWER BY THE COMMITTEE.

Chicago Medical Society,
25 East Washington Street, Chicago.

Answering the criticisms by Mr. Lies of the United Charities we submit the following rejoinder:

Paragraph 1. It is a well known fact that in the passage of resolutions by large bodies of men that such resolutions often do not actually represent the convictions of the mass of the members in whose name they are passed, but rather the private opinion of one or two persons or of a small committee. As long as the American Federation of Labor is so strongly opposed to compulsory health insurance, it is not hitting far from the mark to say labor is opposed to it.

A gentleman present at the recent New York Conference on compulsory health insurance, after hearing all the papers, expressed himself in the following words: "Labor seems opposed; the employers seem opposed; physicians seem opposed, and only the theo-

rists and reformers seem in favor of it, and even they do not seem to know just exactly what they want." We feel that the above quotation states the matter as concisely as anyone can express it at the present time.

Paragraph 2. The physicians mentioned in your communication are credited as being in favor of health insurance, but we wonder that it has not occurred to you that they do not represent the general medical profession, but instead can be classified in three divisions. First: the contract practitioners, whose opinions naturally would be biased; second, men who have absolutely no experience in general practice, such as newspaper practitioners, at least one of the men mentioned has had practically no experience in the treatment of disease; third, specialists who have been so long out of general practice that they are not in touch with general medicine and even some of them, we are told, are beginning to see the light and have reversed their former written convictions (see letter of Alexander Lambert, last paragraph of this reply).

If you could attend some of the meetings which the members of this committee have attended and see with what unanimity the physicians pass resolutions to oppose the passage of compulsory health insurance laws, we think you would agree that our statement is not far out of the way.

Paragraph 3. That poverty is the cause of sickness and not sickness the cause of poverty we still maintain is absolutely true, with the exception of the individual case, which happens not to be in question. Less than 3 per cent of time lost in America from sickness by actual statistics cannot argue that sickness is the cause of poverty. The assumption by individuals that sickness is the cause of their poverty when the real underlying causes, such as shiftlessness, improper living and extravagant expenditures of money for luxuries and non-essentials cannot be accepted as evidence.

The fundamental needs of the poor as referred to in the report of the Fabian Society are essentially want of sufficient wage, want of nourishment, want of warm clothing, want of proper housing and want of rest.

Paragraph 4. That prohibition is a large factor is self evident. It was proven in 1905 that there was more money spent for alcoholic drink than for groceries and meats in the city of Chicago. The effect of alcoholism in the city of London, where one-fifth of the deaths were due either directly or indirectly to this cause, cannot be overlooked.

For more convincing argument we refer to Kansas where prohibition has worked out most effectively of any of the states. Poverty there has almost reached the vanishing point. Kansas now has the lowest death rate and the highest amount of money per capita of any state in the Union.

Paragraph 5. Health insurance is not working out satisfactorily in either Germany or England in spite of Dr. Zacher's statement. The statement is misleading, in fact it does not and cannot take into consideration all of the elements, such as military super-

vision, and as reliable statistics as we can get in the United States, which we admit lack discrimination, the longevity of every community where we are able to get statistics (Baltimore, Boston) show that we exceed those of Germany under our present system. ffl

The statement that it increases longevity taken from statistics of Dr. Zacher and referred to by Mr. Miles M. Dawson before the Congressional Committee on Social Insurance that the length of life of the German people from the period 1870-1900 has been increased from 36-48 years is not true and, statistics do not bear him out. According to Frederick L. Hoffman, the most reliable statistician in America, if not in the world, who says as a matter of fact the alleged increase of twelve years in the longevity of the German male adult population under health insurance, and longevity in consequence thereof, is a thoroughly misleading statistical assumption and contrary to the facts of the German official life tables correctly interpreted in conformity to qualified statistical and actuarial judgment.

At the present time the white male expectation of life at age of 30 in the United State is 34.87 years against 34.55 years in Germany. At the age of 70 when the reasonable effects of progress in industrial conditions and public health should be most perceptible, the white male expectancy of life in United States without social insurance is 8.83 years against 7.90 years in Germany notwithstanding many years of compulsory health insurance experience.

According to Prof. Ludwig Bernard, professor of economy, University of Berlin, many diseases or disorders have sprung up since the advent of social insurance, such as pension hysteria, pension neurasthenia and pension hypochondria. All of those are now quite frequently met with in German medical practice.

We observe that certain of the insured are no longer as much interested as formerly in the quickest possible recovery; that after a wound has healed, the subjective trouble often continues for a comparatively long time. Since the enactment of the workmen's compensation insurance the co-operation of the insured has been wanting. The hearty co-operation for quick recovery which we note in now insured patients diminishes considerably in this class of cases. In spite of the improvement in healing methods the prospect of recovery seems to be growing worse. Sixty per cent of all cases that come before the Industrial Commission in Germany are for the determination of continued benefits on account of malingering. This is true in England and is also true before the Industrial Commission in Illinois under the Workman's Compensation Act.

Paragraph 6. The statement that it will not decrease poverty is true, because the employer, in order to keep his assessments low, will carefully choose his employees, selecting only the healthy and excluding the others by medical examinations and therefore there will be a strong tendency to the formation of a large permanent pauper class.

Because under all the schemes for compulsory

health insurance as yet proposed, the persons most needing the insurance will not get it, those who are out of work except on account of illness, longer than the extension of one week for each four weeks during the previous twenty-six weeks of paid-up assessments, those who are unable to get into the voluntary insurance societies because they are unable to pass the medical examination, those who are not insured because they are unable to get work on account of their age, alcoholism, shiftlessness, general incompetency, or any other disabling condition which prevents them from being employed. In times of financial distress or panic, these unfortunate conditions will be magnified many fold.

Further we quote Samuel Gompers as follows: "This fundamental fact stands out paramount, that social insurance cannot remove or prevent poverty. It does not get at the cause of social injustice. Social insurance in its various phases of sickness insurance, unemployment insurance, death benefits, etc., only provides the means for tiding over an emergency. The labor movement aims at constructive results, higher wages, which means better living for the workers and those dependent upon them; better homes, better clothing, better food, better opportunities, etc., which means relief from overfatigue, time for recuperation, workers with better physical development and with sustained producing powers. Better physical development is in itself an insurance against illness and a degree of unemployment. The short hour workman with higher wages become better citizens; better able to take care of themselves."

And this from Dr. Mathew Wells, president of the International Photoengravers' Union: "Health insurance is founded primarily on incompetency and improvidence; this proposal does not remove or prevent want or poverty nor does it deal with the causes of social and industrial injustice."

Paragraph 7. It is true that medical men in Germany might, from a wrong sense of loyalty and national pride, publicly deny that compulsory health insurance has hindered medical progress in Germany. However, some of the prominent medical men of Germany have privately indicated to at least one member of this committee that compulsory health insurance is interfering seriously with medical progress. It is a noteworthy and conspicuous fact that in the past twenty years only one therapeutic discovery of first magnitude has come out of Germany and that discovery was made by a chemist and not by a practicing physician.

The German Sickness Societies during their thirty years of existence have so interfered with the income of physicians that now only a few of the financially able or those where prospective marriages could bring them a competency are able to take up the study of medicine, consequently this automatically bars out the naturally fit from the general practice of medicine. This leads to fewer physicians of class which consequently overburdens others with work. The average "Kranken Klasse" physicians making calls for an aver-

age of about 20 cents per call, in order to make his income sufficient to meet living expenses, must make many calls, forcing him to neglect to continue his education and in this way deteriorating the service to the great mass of people so that they probably receive the poorest class of medical service in the world. England will be in the same condition in a short time, and in fact now the insured are complaining of the service they are getting under the Social Insurance Act.

Paragraph 8. Attempting to get something for nothing or much for little always pauperizes people and this is just exactly what compulsory health insurance encourages. Everyone familiar with the workings of the Compulsory Health Insurance of Germany and England who does not hold a sinecure under the system, will substantiate the statement that patients run to the doctor for every little ailment just because the service is not charged to them personally.

Children can be educated fairly satisfactorily in mass, but sick people cannot be successfully treated by wholesale methods. Taxation we will concede is of benefit in our educational system, but there is no proof that we could benefit the state by taxation for health insurance.

To compare voluntary fire insurance with compulsory health insurance is ridiculous. In the former the individual pays in full for his insurance, while under the proposed compulsory health insurance law he accepts gratuitously 60 per cent charity.

Paragraph 9. If you had labored as long and faithfully in attempting to remedy the abuse of dispensary medical service as some of the members of this committee have you would not be so sure that these abuses can be remedied. Your second statement is contrary to the facts in the case, and even Lloyd George had to admit that the number of those dependent on medical charities has not decreased since the enactment of compulsory health insurance laws in England.

Paragraph 10. Hundreds is absolutely correct and we do not make the statement that there are thousands. Even many of those who do not claim to give free medical services, as a matter of fact are doing so under the guidance of some non-paid physicians. In addition to this there are perhaps hundreds of others, such as church and other agencies not listed in the social directory mentioned, yet all are giving free medical services.

Paragraph 11. The statement in paragraph 11 was not intended as a slur but was intended to illustrate in a general way the probable cost of distribution of the health insurance fund. The statement the committee had every reason to believe to be correct and it was based on the sworn testimony before a legalized body having power to administer oaths, same being the report of the joint committee on Home Findings Societies appointed under House Joint Resolution No. 36 of the 48th Illinois General Assembly, 1915, page 101, under the heading, "How the Money Was Spent." We quote the paragraph in full:

"The total amount of 1914 disbursements, \$297,133.50; provision of relief centers and general office, \$42,706.12; supervisory salary, \$32,145.33; relief service, \$94,458.70; visitors' carfare, \$3,543.67; material relief, \$123,805.35; refunds, \$474.03. This shows that but \$123,805.35 out of \$297,133.50 was given to the poor in food, fuel, rent, medicine, clothing and the like, being only 41.5 per cent of the total. In other words, 58.5 per cent of the amount of money disbursed was expended in rent, salaries, etc.

Paragraph 13. In the second to the last paragraph you make the statement "Health insurance, in which the state will figure in some important manner, is bound to come in the United States in the near future." For the country's good, we sincerely hope that you are as poor a prophet as you seem to be a critic.

Finally, before leaving this phase of the subject we suggest that if fraternalism is to be applied generally to medicine why not include in this socialistic scheme, coal, fuel, clothes and the supervision of private charities? It is rumored that the organization which you represent strenuously opposed the enactment of a law for state control of private charities at the last meeting of the legislature.

As showing the change in attitude as to health insurance we wish to refer to a letter written by Dr. Alexander Lambert, chairman of the Social Insurance Committee of the American Medical Association, as follows:

The whole situation is this: You have an insurance company that is trying to go in as a middleman between the patient and the doctor. All previous experience shows that when once firmly established, so that it can control the practice among the patients by giving them lower rates for medical service, the middleman in the end can dictate terms to the doctors and bid them down to absolutely inadequate remuneration for what they do. At first it looks very tempting to be assured of good, big fees for possible operations, which, by their very nature, relatively seldom occur and which are only done by few surgeons, but the main work is among the patients with the small fees. Of course, when many are seen and one gets 100 per cent collections, as would be done by the company paying it, it increases the income to the doctor because of the proverbial lack of collections that ordinarily physicians make.

I think there is one pernicious factor in this scheme, and that is that the patients pay a varying fee of \$1, 60 cents and 40 cents, and yet the same service is given for the varying amount of returns. That, I think, you will find to be a vicious system. There is no question as to the possible value of this scheme. There is no question that the doctor getting 50 per cent and the insurance company taking 50 per cent for expenses and profit, makes a mighty good thing out of it, especially since it takes only very selected groups of lives. It takes the healthiest group of people in the community and offers them medical treatment. It practically be-

comes a variation of lodge practice among selected lives and under capitation system. It has all the possibilities of the evils under this system. If there are a great many patients under one doctor's care, and a good deal of sickness, even in these selected lives, the doctor must give a hurried service and an inadequate service, even for these small fees. It comes right down to the evils for which lodge practice is held in contempt—that of inadequate remuneration for poor medical service.

As far as the health insurance scheme is concerned, it is perfectly inadequate. You cannot choose the healthiest lives in a community and give them selected service on small pay and think you are doing anything for the community in the way of health insurance, because a health insurance scheme must take in all lives, good and bad, the very sick as well as the very healthy, and must give good service to all. This scheme which you have sent me successfully avoids any medical service except to the unusually healthy.

"There is the danger in all these schemes of debauching a community in its ideas of medical service when done on a commercial basis such as this. It gives the idea to people that they can get medical service for almost nothing, and in the end it comes down to the doctor under lay control that deliberately makes the physicians bid against each other and produces all the evils of capitation system or lodge practice. It is the beginning of the condition against which the physicians in England fought so bitterly and complained of so bitterly just before their insurance act was enacted. The insurance companies make anywhere from 17 per cent to 35 per cent out of what they collect, and any middleman will gladly undertake the job to sit still and do that, letting the doctor do the work."

Sincerely yours,

ALEXANDER LAMBERT.

Committee on Social or Health Insurance of the Chicago Medical Society:

EDWARD H. OCHSNER,	S. V. BALDERSTON,
C. B. KING,	J. V. FOWLER,
GEORGE APFELBACH,	A. W. SEIDEL,
WM. O. KROHN,	J. R. BALLINGER, <i>Sec'y.</i>
CHAS. J. WHALEN, <i>Chairman.</i>	

Approved by the Illinois State Medical Society.

Committee on Social or Health Insurance of the Illinois State Medical Society:

EDWARD H. OCHSNER,	J. R. BALLINGER,
GEORGE APFELBACH,	E. W. FIEGENBAUM,
C. A. HERCULES,	W. B. CHAPMAN, <i>Sec'y.</i>
S. V. BALDERSTON,	CHAS. J. WHALEN,
<i>Chairman.</i>	

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Scientific Meeting, April 11, 1917.

The President, Dr. A. Augustus O'Neill, in the Chair

DR. CLARENCE W. EAST, Illinois State Board of Health, read a paper on "Aftertreatment of Anterior Poliomyelitis." He said there were two phases of infantile paralysis when it is a public health problem: 1. In the acute stage, when all possible must be done to limit its spread. 2. In the convalescent stage, when all possible must be done to prevent and correct deformity and re-establish neuro-muscular function. Approximately 10,000 cases were reported to the State Board of Health during 1916, the great majority of them from July 1st to December 31st. After studying the methods of aftercare employed by Vermont, Massachusetts and New York, it was decided to hold a series of clinical conferences. Thirty cities, covering the entire state, were visited; more than 500 patients were presented at the clinics. Between 500 and 600 physicians attended the clinics. Approximately 3,000 people attended the lectures.

The patient's neuro-muscular apparatus should be retained exactly along lines by which he first acquired the use of it. This restraining must be directed to the specific muscles involved. General efforts result in overtraining of unaffected muscles, thus producing deformity. All deformities result from overpull of unaffected muscles against the weakened muscles, in the first place; in the second place, weight bearing, and in the third place, over use of the parts. All deformities must be prevented or corrected. Full motor function must be restored to a part before weight bearing is allowed. A child must be able to stand before he can walk. Motor function must be approximately correct. Recovery in muscle groups must stimulate the growth process in order and in time.

DISCUSSION

DR. JOHN W. NUZUM, in speaking of the etiology of anterior poliomyelitis, stated that Landsteiner and Popper in 1909 first succeeded in inoculating monkeys with spinal cord substance taken from paralyzed human cases. They took the cord from a child dying within 24 hours of the disease, ground it up in normal salt solution, and injected it intraperitoneally, and the monkeys, after a period of 7 days, developed typical flaccid paralysis. On sections of the brain and cord they found the pathology of poliomyelitis similar to that as observed in the human. Up to date they have had in Chicago about 15 spinal cords and brains from paralyzed humans, and in 13 of these 15 cases they were able to isolate a polymorphous, apparently a streptococcus, organism. They have isolated from the brain and spinal cord of 13 of these 15 cases of poliomyelitis and from the spinal fluid of many cases of acute poliomyelitis the same peculiar Gram positive coccus which, injected into monkeys and rabbits, produces paralysis, and in many cases it has produced a typical picture of poliomyelitis as it is known in the human being.

DR. JOHN DILL ROBERTSON, Commissioner of Health of Chicago, discussed the clinical manifestations of poliomyelitis. Of the

symptoms referable to the nervous system, stiffness of the neck, the anterior spinal flexion sign of Peabody, Draper and Dochez took the first rank. This sign was definitely present in varying degree in 82 per cent. of the cases, while in the other 18 per cent. its absence could not be proved, the children being seen for the first time after the ebb of the acute symptoms. Pain was a prominent symptom of the stage of onset. Fifty cases complained of headache, while 43 were unable to say whether it was present or not. Irritability was a frequently noted condition, the children being particularly cross after awakening, some of them very irritable. Drowsiness was even more prominent, occurring in 81 per cent and usually lasting from 2 or 3 days to a week or more. Restlessness was present in only 3 per cent. of the cases. Respiratory symptoms were remarkable because of their absence, in only 4 of his cases a bronchitis being noticed, and in 9 a sore throat. Urinary examination in over 200 cases of poliomyelitis was notable for the negative results. As to mortality of 240 cases, 33, or 13.74 per cent. died. In 30 instances in which the onset was definitely known, death occurred in 10, or one-third, by the fourth day, and in 21, or 70 per cent, by the tenth day.

DR. EDWARD K. ARMSTRONG, in speaking of the diagnosis of acute epidemic poliomyelitis, said that a group of cases which offer unusual difficulties in diagnosis are the rapidly progressive or fulminant cases. These are oftentimes not seen until moribund, or an opinion is desired even after death of the patient. These cases all have temperature, which is likely to be rather high, 103 degrees or more. After a short period of prodromata, with perhaps a slight remission, bulbo-pontine paralysis appears, or a paralysis of an ascending or descending type, the so-called Landry's paralysis. The encephalitic type is one of the uncommon forms of poliomyelitis and is particularly difficult of diagnosis because of inability to differentiate it from encephalitis due to other causes.

DR. ARCHIBALD L. HOYNE stated that statistics of various epidemics show complete recoveries occurring in from 15 per cent. to 50 per cent. of the cases. The mortality in the New York cases last summer was said to be about 26 per cent., whereas the Chicago death rate for this disease during the same period was approximately 15 per cent. Among approximately 116 cases of poliomyelitis which the author had in his service at the Cook County Hospital, there have been but three deaths, these due to respiratory paralysis. During 1916 the total number of poliomyelitis cases reported to the Chicago Health Department of 285, of which there were 44 deaths, or about 51½ per cent. The death rate in New York was about 26 per cent.

DR. EDWIN W. RYERSON discussed the orthopedic treatment of anterior poliomyelitis. It is very essential to find out what muscles are permanently paralyzed and what muscles are strong. A number of operations have become well standardized and their value has become definitely established. One of the most striking of these is the relief of paralysis of the quadriceps extensor. Usually, in cases of quadriceps paralysis, the hamstrings remain strong. We can take one of the hamstrings on each side of the popliteal space, for instance, the biceps from the outer side and the semitendinous from the inner side, dissect them well up on the thigh, and transfer them under the skin to the patella. A slit is made in the periosteum of the patella and these tendons are sewed into the slit in the periosteum and bone. This is done with kangaroo tendon or chromicized catgut and a strong union usually results. Within six or eight weeks power can be observed in these muscles, and in a few months most of the cases will be able to extend the legs on the thigh, and nearly all of them gain a satisfactory degree of power.

Scientific Meeting, April 18, 1917

DR. R. R. FERGUSON discussed the subject of "Is Nitrous Oxid Oxygen Gas in Labor Dangerous to Babies?" More than 50 per cent. of babies delivered by gas analgesia show a slight crowing inspiration immediately after birth, which may last from 24 to 48 hours. This is an entirely different condition from that encountered when mucus has been drawn into the larynx; it is more like a slight paralysis of the epiglott-

is, with a resultant moaning sound. When gas is used in a high degree of concentration for longer than 3 hours, the baby should receive not only all the oxygen possible before the cord is tied, but it should be further reinforced by giving pure oxygen more or less continuously for from 24 to 48 hours after birth.

DR. HENRY F. HELMHOLZ spoke on "Pyelocystitis in Infancy and Childhood." To make a diagnosis of pyelocystitis, one must examine the urine repeatedly. The most important therapeutic measure is plenty of fluid so as to wash out the purulent exudate from the kidney and bladder. If vomiting is persistent, the fluid must be given per rectum or by intravenous injection. At least one quart of fluid should be given every 24 hours to a child under 2 and at least 2 quarts to older children. In the drug treatment it is essential to differentiate between the infant and the older child. The infant usually improves more rapidly on alkaline treatment than by the use of urinary antiseptics.

DR. J. W. VANDERSLICE gave as the causes of abdominal pain in infants, according to their approximate order of frequency, dysperistalsis, disturbance of the motor function of the stomach, including pyloric spasm, hour-glass contraction, spasm of the cardiac sphincter, incoordination of the bladder, spasm of the sphincter vesicae; referred pain from the thoracic cavity, pleurisy, empyema, etc.; renal colic; spinal caries and osteomyelitis; peritonitis and appendicitis. The treatment instituted must be based on the underlying conditions and not for the mere relief of pain.

DR. EDWARD H. OCHSNER reviewed the clinical findings and history of several cases of various sorts of infection, in all of which the diplococcus of Weichselbaum was found. All of these cases had recovered with astonishing rapidity under treatment of boric acid internally or by dressings. Since fully 75 per cent. of all pneumonias are due to this diplococcus, if boric acid promptly relieves the symptoms in all other infective conditions where the diplococcus of Weichselbaum is the causative agent, is it not reasonable to expect that it will be effective in pneumonia also. He urged the use of boric acid in the treatment of pneumonia.

Scientific Meeting, April 25, 1917

DR. GEORGE C. JOHNSTON, of Pittsburgh, presented some x-ray studies of the pituitary region in intracranial lesions. The author laid considerable stress upon the importance of the very best possible roentgenograms for the study of the pituitary region and detailed his own technic.

DR. ARIAL GEORGE, of Boston, in speaking of the roentgen diagnosis of the pathological gall-bladder, said that there is among x-ray men generally throughout the country the opinion that the normal gall-bladder can be visualized frequently, but it is impossible to get postoperative results. Although he held the contrary opinion from his own experiences, he believed that the sooner these statements can be proved, either to substantiate his opinion or the contrary, much progress will be made along these lines. Any assistance that can be given to medical men on the study of gall-bladder disease is practical and a distinct advance

Scientific Meeting, May 2, 1917

DR. CHARLES H. MAYO, of Rochester, Minnesota, in discussing the problem of cancer of the large bowel, stated that of 100 cancers of the intestines reviewed by him, 2 only occurred in the small intestine, while 75 occurred in the rectum; that is, including the anus, the upper rectum or recto-sigmoid. In the remaining 23, 10 occurred in the sigmoid, 10 in the right half of the colon, and the others were distributed in the transverse and upper descending colon. A greater percentage of cases of cancer of the large bowel are now accepted for surgical treatment than is indicated by the report of Cripps. Previous to 1910 at the Mayo Clinic, 53 per cent. of cases were chosen for operation. Since that time the percentage has increased to 71.8 in a total of more than 800 cases. In cancer in the movable part of the large bowel the operative cure was about 54 per cent. for the three year period; in the rectum the curability is 38 per cent. for three years, and 35½ per cent. for 5 years; that is, by adding to this the age mortality of the patients operated on. Local excision may be employed for cancer of the anal canal. Radium may also accomplish good results in these cases. There is a mortality of 20 to 33 per cent. with the combined one stage operation for cancer of the rectum, but the combined two stage operation has enormously reduced the operative mortality. When the cancer is situated in the lower rectum, if the sigmoid can be preserved there is really no special reason for opening the abdomen. Within the past month the speaker has seen two patients with large metastasis of the spleen. Up to within the last year he has neglected to make an exploratory examination of this organ which, with the liver, is very often a complication in cancer of the rectum.

J. V. FOWLER, Secretary.

CHICAGO OPHTHALMOLOGICAL SOCIETY

Meeting of Dec. 18, 1916—Continued.

VENTRICULAR INJECTIONS FOR TABETIC OPTIC ATROPHY

Dr. George F. Suker said that through the courtesy of Dr. Gradle and Dr. Goldenberg he had had the opportunity of showing two cases this evening. They were both cases in which ventricular injections for tabetic optic atrophy were resorted to. Both operations were performed by Drs. Gradle and Goldenberg, the speaker simply assisting them. The patient of Dr. Gradle's had had three injections and his field of vision had perceptibly increased. In this instance 60 c.c. of ventricular fluid was withdrawn and the patient injected. He received 1/20th to 1/50th of a grain of bichloride of mercury and his mentality had decidedly changed for the better. The other patient was also a tabetic of whom a positive report was made of absence of patellar reflexes. Now, if this was the case, that the patellar reflex had been restored after being absent in a case of tabes, it was an exceptional instance—an anomalous condition. Taking it for granted

that the absence of patellar reflex was positively determined in this case, but was now present after bichloride of mercury injections, the speaker would consider the man not to be a true tabetic but a senile dement. In other words, he had progressive dementia, the cerebral type or the cerebrospinal type of syphilis. In contradistinction to tabes or senile dementia, the man would maintain his vision and keep what he had and improve, because if ever there was a syphilitic condition that was favorable, it was the cerebral type of lues, particularly in those cases in which one got a modified type of Argyll-Robertson pupil which this man possessed.

He urged Dr. Goldenberg to watch the man carefully and take his field of vision at intervals and inject him rather frequently. If ophthalmologists had a right to do experimental surgery, they had a right in doing so in these two cases. The personality of one patient had undergone a remarkable change. The *prima facie* evidence was in the ophthalmoscopic appearance of the disc. An accurate record of the field of vision would determine the progressiveness of cases of optic atrophy.

PAUL GUILFORD,

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held November 20, 1916, with the President, Dr. William E. Gamble, in the Chair.

TOWER SKULL WITH DOUBLE OPTIC NERVE ATROPHY.

DR. MICHAEL GOLDBERG read a paper on this subject and stated that anomalies in the development of the skull are very common and have been thoroughly studied by workers in this particular branch of pathology.

The Tower skull, or thurmschadel as the Germans call it, is of special interest to us as ophthalmologists owing to the frequent pathologic eye findings associated with this condition. Not that the eye findings are only found in this particularly shaped head or that ocular lesions are always found here, but they come to us as ophthalmologists for the eye affection and we find this probably the most common deformity of the head. Again, it is quite probable that malformations of the head are more commonly the cause of eye lesions than one is led to believe from the available literature. We find, for example, that up to 1912 only 26 cases of tower head had been reported. Enslin, who was looking for these cases over a period of two years, out of 9,380 eye patients found 16 cases of this kind; so that it is quite apparent that if we do not look for a special condition we do not find it unless it is an extremely marked case as in the one we present.

Tower skull per se as the cause of eye disease is still problematical, for we find a number of cases reported of this shaped head without any eye lesion at the time of examination; of course, it is quite possible that a transitory eye lesion might have been present

and has left no evidence later in life when examination was made.

One could reason that this definite skull malformation must have some influence, for we find that in all cases reported we have virtually one eye lesion, and that an affection of the optic nerve. In the 42 cases reported, 36 had a post-neuritic atrophy, 2 with a double neuro-retinitis, 2 with one-sided papillitis and post-neuritic atrophy and 2 cases with primary optic atrophy.

The question that arises is, whether Tower skull is the direct or indirect cause of the optic nerve lesion. The theory propounded that the casual factor responsible for the malformation of the skull is also the cause of the optic nerve lesion has a number of adherents.

We find that maldevelopments of the skull are due to a premature ossification of the different sutures and in this particular form the coronal suture is closed very early with compensatory development, or maldevelopment takes place vertically to the closed suture.

The probable cause of the premature ossification of this suture, the time of onset, whether intra or extra uterine, is very interesting, and much can be said, but we shall only state at this time those essentials that might be associated with the eye lesion.

In a number of cases reported and in the one we are presenting we are inclined to believe that this process began during the prenatal period.

That an osteitis is present and is the probable cause of the premature ossification of the sutures nearly everyone is agreed upon. The etiology of osteitis, at least in adult life, is infection of some character. That a metastatic infection during intrauterine life is possible there is no doubt, and is not strange to ophthalmology.

The theory of excessive nutrition of the bones possibly brought about by a passive hyperæmia, as propounded by Bier and referred to by obstetricians under the caption of abnormal positions or flexions of the fetus, must also be given some consideration.

Michel states that he is inclined to think that the change in the growth of bone is due to an increased process of nutrition.

The history in our case plus the x-ray plates will, we believe, throw some light on this obscure subject.

The family history as far as we could ascertain is apparently negative on both sides of the family tree. The mother of our patient has two additional children living, and as far as one can see they are perfectly normal, the photograph shows an older sister. One child died of a valvular lesion.

The mother states that all her labors were normal, but that she had some difficulty with our subject. The attending physician having found the head rather long, but succeeded in delivering her without the use of instruments.

When the child was born it had too many soft spots on the top of the head, particularly in the center, where the mother says there was noted a marked

thumping. The front part of the head was hard. Both the veins and arteries over the temples were very prominent, and a marked pulsation was present, particularly so upon the left side. There seemed to be a large, hard protrusion somewhat above the back of the left ear.

Physicians who saw the case at that time thought the child had been delivered by instruments. The child had great difficulty in nursing and breathing at the same time, and even when not nursing, breathing sounded as if she were choking. The attending physician was inclined to think there was a growth in the nose, but nothing was done in this direction. The attending physician's opinion in regard to her head at this time was that she had water on the brain.

As regards the eyes, they were very prominent, and the child did not seem to show evidence of being able to see very much, as far as the mother can remember. The child had no lesions of any kind on the skin and was apparently otherwise normal. When four months of age, she developed a rash on the left cheek and later also on the right cheek, but this rash soon disappeared.

At the present time we have the Tower skull with bitemporal circumference of $17\frac{3}{4}$ inches. A sagittal measurement of $14\frac{3}{4}$ from nasion to occipital protuberance. Perpendicular from nasion to highest point of the skull of $5\frac{1}{2}$ inches, and an anterior posterior diameter of $5\frac{1}{2}$ inches.

The eyes are very prominent, but it is questionable whether this condition can be called a true exophthalmus. The eyeballs are very large and the sclera thin. The cornea normal in size, transparency and sheen. We have a divergent strabismus with a marked horizontal nystagmus.

Anterior chamber and iris negative. The pupillary opening is about 6 mms. and equal in both eyes and reacts very sluggishly to bright light. Tension negative. Vision in R eye—nil. Retinoscopy of—5.00 in both meridians with no improvement in vision. L., 4/200—6.50—3.50 ax. 150—8/200.

Fundus-disks are dirty gray and outlines not well defined; could not be sure as to the caliber of the vessels, owing to the marked nystagmus, but we are inclined to think that there is some evidence of a perirascutitis. Direct ophthalmoscopy was very difficult and unsatisfactory.

NOSE.—Vestibule of negative septus as if it had been pressed down upon and lies spread over the floor of the inferior meatus, pronounced deviation high up.

Note the wrinkling of the skin around the mouth, with no evidence of scars, similar wrinkling of skin, but very much more marked and almost black as if dirt had been ground into it, is noted over the abdomen, axillæ and on legs, which was pronounced by a dermatologist as an ichthyosis with an abnormal distribution.

The teeth are in bad condition and the alveolar process of the superior maxilla is very thick, the hard palate is very high and the greatest distance between the base of arch is $5/16$ of an inch. The soft palate is

very long, but otherwise negative. Inf. maxilla negative.

EARS.—Externally negative, drums, absence of sheen and slightly retracted. Hearing very acute, both of low and high tones, a rather remarkable feature is that the bone conduction is as great and sometimes greater than the air conduction.

General health good, her only complaint is that of a little pain over eyebrows, especially in cold weather.

Mentally, when one takes into consideration the vision and lack of education, we can say she is quite bright. Plays the piano by ear.

Our roentgenographs show the skull to be very irregular in thickness with numerous depressions on the inner table undoubtedly formed by the convolutions of the brain. Suture lines were not demonstrable and the grooves or the meningeal vessels or diploic veins were markedly accentuated. The sella turcica was approximately normal in size. No evidence of pathology responsible for the exophthalmus. The roentgenographer further states there is premature ossification of the sutures, leading to a condition known as internal hydrocephalus, and the increased intracranial pressure is responsible for the peculiar markings on the inner table.

Owing to the peculiar facies, we were inclined to think of congenital lues, but this had to be excluded by the family history, clinical and sacrological findings. Urinalysis negative. Tubercular tests were not made.

It seems to me that this case is well worthy of presentation for several reasons:

The apparent evidence of the disease during the prenatal period. The fact that 75 per cent of these cases are seen in the male, and by far the largest percentage of total or partial blindness occurs in the male. Most of the cases are not recognized until long after birth, when the patient usually comes in for some other condition, or his or her failure to pass some eye examination. When a post neuritic atrophy or a primary atrophy is found, and the thought suggests itself to us, that possibly some of the so-called amaurotic eyes could be explained upon these grounds.

According to Von Graefe, the atrophy following a neuritic can for a long time be recognized as such, but not forever, as later it cannot be differentiated from a primary atrophy.

The fields are as a rule the same as in papillitis, i. e., concentric contraction. Where vision was good there was found no enlargement of the blind spot.

Dr. E. K. Findlay reported a case similar to that narrated by Dr. Goldenburg.

Dr. Casey A. Wood presented the subject of "Area Centralis in the Eyes of Birds." His remarks were illustrated by numerous slides.

Dr. Robert Von Der Heydt gave a translation of part of a lecture by O. Haab, of Zurich, entitled "A New Form of Keratitis or Inflammatory Degeneration of the Cornea." A continuation of the translation will be presented at the next meeting.

HANCOCK COUNTY

Hancock County Medical Society met at the Science Hall, Carthage College, on April 2, 1917. A group of college students furnished some good music at the beginning of the session.

Dr. Albert Woelfel of Chicago spoke on "Radium, Its Properties and Therapeutic Uses," handling his subject in a thorough and scientific manner. A number of the science students from the college attended this lecture.

Dr. J. T. Jenkins read a paper on the "Recent Epidemic of Septic Sore Throat." The subject was discussed by Dr. Knight, Dr. Parr and Dr. Helen Moore. Dr. Moore, who is doing interne work at a Kansas City hospital, stated that the disease had been to some extent epidemic in Kansas City, although apparently in milder form. Dr. Jenkin's paper and the discussion that followed brought out a number of interesting facts.

HENDERSON COUNTY

The Henderson County Medical Society met at Stronghurst, May 1, 1917, at one o'clock p. m. in the Masonic Hall. Seven members were present. The following fee bill was adopted:

Calls in town, \$2.00, and night calls, \$2.50. Inside of one mile outside of town, \$2.50, and 50 cents for each additional mile. Normal labor cases, \$15.00, and \$50.00 maximum for instrumental labor cases. On motion by Dr. Marter the president and secretary of the society are to constitute a Committee on Council of National Defense and all the members of the Society are added to the committee.

Dr. Kaufman and all the members of the society signed the fee bill except Dr. E. E. Bond of Stronghurst, who refused to sign it.

Adjourned.

J. P. RIGGS, Secretary.

LAKE COUNTY

Lake County Medical Society met in regular session at Highland Park, Thursday evening, April 19, Dr. Billmeyer presiding.

Visitor, Dr. James Herbert Mitchell, Professor of Dermatology, Rush Medical College of Chicago.

Dr. Guy Forney, Fox Lake, was elected to membership.

Secretary read communication from Dr. Don Deal, secretary of state legislative committee, relative to support of House Bill No. 657.

Motion by Dr. O'Neil, seconded by Dr. Foley, that we concur in this and that secretary be instructed to write our legislators so stating. Carried.

The following resolution presented by Dr. A. E. Budde was then read:

Resolved, That the Lake County Medical Society recognizes the patriotism of those members of the medical profession resident in Lake county who volunteer for the service of the United States government,

and in appreciation of this we recommend that should these members of the profession be called into active service, the doctors who shall attend their patients should turn over one-third of the fees collected from such patients to the physicians in active service, or to his family.

Motion by Dr. Tombaugh, seconded by Dr. Kalowsky, we adopt the resolution as read. Carried unanimously.

The regular program of the evening was then given.

First number was a paper by Dr. James Herbert Mitchell, Chicago, on "Recent Findings in Skin Diseases. The paper was well presented and very interesting.

Dr. L. H. Tombaugh gave an excellent report on the subject of "Compulsory Health Insurance."

Dr. L. P. O'Neil presented a paper on "Determination of Kidney Efficiency by Blood Examination," something new, and promises to be an aid of much importance in the near future.

Dr. T. S. Proxmire gave us a talk on "Medical Preparedness," that was full of timely suggestions to our profession.

A vote of thanks was tendered Dr. Mitchell for his excellent paper.

Adjourned.

DR. C. S. AMBROSE, Secretary.

MADISON COUNTY

The Madison County Medical Society met in the rooms of the Retail Merchants' Association in Alton, April 6, 1917. In the absence of the presiding officer, Dr. I. J. Beard of Godfrey was called to the chair. Twenty-two members and two visitors were present.

Dr. Earl S. Meloy was declared duly elected a member.

On motion it was decided to hold our annual banquet some evening during the first week in May at Edwardsville and a committee consisting of Drs. Ferguson, Hirsch and Sutter was appointed to arrange for the same, with power to act. It was further ordered that the cost of the banquet be fixed at \$1.00 a plate and any deficit resulting be paid by the society.

A communication from the University of Illinois in regard to post-graduate courses and in regard to co-operation between county society and the University was read and referred to a committee consisting of the president and secretary. The usual annual application of the Madison County Tuberculosis Association to affiliate with the State Society was read and the secretary was authorized to sign and forward the same together with our annual budget, which was adopted in terms as follows:

Resolved, That the budget of the Madison County Anti-Tuberculosis Association, representing the appropriations for the fiscal year 1917, be made up as follows: Milk and eggs, \$50; tents and equipment, \$50; hospitals and sanatoria, \$300; nurses and attendants, \$50; printing and postage, \$100; visiting nurses, \$850; lectures and education, \$100. Total \$1,500.

Resolved, That the secretary be instructed to certify

this budget to the proper officers of the Illinois Tuberculosis Society.

Dr. Warren R. Rainey then read a paper on "The Treatment of Acute Arthritis," which was well received. The etiology was first discussed and emphasis was laid upon the fact that the etiology of any joint inflammation determined the method of treatment. The paper elicited a spirited discussion in which many members participated.

A vote of thanks was tendered to our speaker. Dr. Cook moved that complimentary invitations be sent to all those speakers that had taken a part on our program during the past year. Carried. On motion adjourned.

MONTGOMERY COUNTY

The Montgomery County Medical Society met at St. Francis Hospital, Litchfield, on Tuesday evening, April 24. Dr. C. H. Zoller showed a fine collection of x-ray plates and gave a very interesting talk on their interpretation.

The society passed resolutions endorsing selective conscription for military service, prohibition of the manufacture and sale of alcoholic liquors during the period of the war, abrogation of patents held by our enemies on drugs, and provision for helping dependent families of men who go to war.

The applications of several men for membership in the society were voted upon. Four retired men, who, have been active in society work and who have been a credit to the profession of this section of the country, were made honorary members.

PIKE COUNTY

The Pike County Medical Society met in the County Court room at Pittsfield on April 26, 1917. After dinner at a nearby restaurant, between twenty and twenty-five were registered. There were two applications for membership, which, with an attendance of over one-half of all the membership, attests to the flourishing condition of medical interests in this county.

The meeting was chiefly a business one, as the matter of fees was taken up and thoroughly discussed. The main changes in the fee-bill are \$5.00 for the minimum in cases of anesthesia; night visits from 50 to 100 per cent. higher than day visits, the night work considered to begin at 6 p. m. and ending at 6 a. m.

A committee was appointed to interview the Board of Supervisors relating to attendance on paupers; it being thought that regular rates should be charged. The committee consists of Drs. Beavers, Peacock, Skinner, Johnston and Gay.

A letter from the committee of American physicians for Medical Preparedness was read and the society promptly went on record as being ready to the last man to answer the call to take care of our soldiers in "the tented field."

The approval of the work of the committee of Medical Legislation was clearly manifested after the reading by the secretary of that important result to medical advance.

Officers elected for 1917-18: Dr. J. R. Pollock, Nebo, president; Dr. F. S. Gay, Rockport, vice-president; Dr. W. E. Shastid, Pittsfield, secretary-treasurer.

Dr. F. N. Wells of Pittsfield introduced a resolution relative to the nation-wide prohibition of alcohol as a war measure, which was endorsed by the society. The society then adjourned to meet in Nebo for the next regular session.

W. E. SHASTID, Secretary.

WABASH COUNTY

The regular monthly meeting of the Wabash County Medical Society was held April 30 at 8:30 p. m. at the Public Library assembly room, Mt. Carmel, with thirteen members and six visiting doctors present.

Dr. J. E. Inskeep was presented for membership, to be voted on at the next meeting.

Dr. Andy Hall of Mt. Vernon, who conducted the Medical Officers' Reserve Corps' examination in Mt. Carmel that day, examining twenty-six men for the M. O. R. C., was present at our meeting and gave us a most excellent and highly interesting talk on "Some of the Duties of the Medical Reserve Officers." He also spoke of his military experience at Jacksonville, Fla., and San Francisco; his military trip to the Hawaiian Islands, the simoon encountered on the way to the Philippines, his military service at Manila and his experience with the Igorrotes and the colony of pygmies.

Dr. E. R. Lescher followed with an excellent paper on "The Influences of Certain Constitutional Diseases Upon the Eye, Ear, Nose and Throat." This paper was discussed by several of the doctors present.

Dr. C. M. Fuson of Harrisburg related his experience with a very interesting case in order to bring out a discussion that might aid him in his treatment of same.

The society then adjourned and had a smoker, followed by refreshments and some fine stories.

DR. A. A. AUKENBRANDT, Sec.-Treas.

Personals

Dr. and Mrs. N. B. Crawford, Eureka, have returned from a winter in Florida.

Dr. Harry John Stewart announces the removal of his office from 30 North Michigan avenue to 801 South Boulevard, Oak Park.

Dr. Malcolm B. MacLean announces the removal of his office to 29 East Madison street, Chicago, and practice limited to eye, ear, nose and throat.

Dr. Frank Billings has been commissioned major, Dr. Warren P. Sights, captain, and Drs. Jacob R. Harry and August Lueders, second lieutenants in the medical corps, U. S. A.

Dr. Charles C. Sceleth, Medical Superintendent, Sceleth Hospital, House of Correction, has opened offices at 25 East Washington street, Chicago, for the treatment of alcoholic and drug addictions.

Dr. Sadie Bay Adair, the newly elected vice-president of the Illinois State Medical Society, was nominated a member of the Chicago Board of Education by Mayor Thompson, but the nominees were not confirmed by the council, owing to a "ruction" on the board.

Dr. Maximilian Herzog has been appointed superintendent of research work, and Mr. Chas. J. Happel, general superintendent of the Chicago Municipal Tuberculosis Sanitarium. Mr. Frank E. Wing, formerly business director, has been appointed secretary of the United Charities of Rochester, N. Y.

Dr. G. Frank Lydston, Chicago, has favored his friends with a 16-page brochure with illustrations of his well arranged offices. For anyone contemplating installing a first-class office the suggestions would be valuable. The only additional help that presents itself is a floor plan of the whole suite.

Dr. Arthur L. Blunt, Chicago, claimed he was banking \$500 a day (not including jewelry, etc.) when arrested recently under the Harrison Drug Act. The doctor may be entitled under the law to all the delay he has enjoyed since his conviction, but more summary action would make the law more impressive.

An exchange, commenting on the large number of physicians in a certain family called forth a letter from Dr. H. V. Donovan, of Cerro Gordo, who, with six brothers and their father, are all practicing in Illinois. Dr. J. H. Donovan, of Windsor, and Dr. S. D. Donovan, of Dewey, are members of the State Medical Society.

Dr. J. Elliott Royer, Professor of Neurology, College of Medicine, University of Illinois, Chicago, has been commissioned by President Wilson, Captain of the Medical Officer's Reserve Corps, and also has been appointed Neurologist in the service. Dr. Royer has had extensive experience with war injuries of the nervous system—having had almost two years voluntary service as a neurologist with the British.

News Notes

—The cornerstone of the Swedish Mission Covenant Hospital at Foster and California avenues was laid, April 22. The hospital, which will cost \$175,000, will accommodate 120 patients.

—Dr. W. L. Frank, Jacksonville, secretary of the Morgan County Medical Society, is compiling the early history of the society and will welcome information about meetings previous to 1866, names of members, etc.

—The second convocation of the American College of Physicians occurred at the Hotel Nassau, Long Beach, Long Island, N. Y., on June 5th, 1917. About fifty physicians of national repute were admitted to Fellowship.

—Dr. Carroll Fox, of the U. S. P. H. Service, has completed an elaborate sanitary survey of Quincy, and in his report has outlined a plan that would be a model for many cities throughout the state with modifications to fit local conditions.

—Dr. Thomas H. Kelley has organized a clinic, located in the Kelley building at 818 E. 75th St., Chicago. Associated with him are Drs. E. R. Chamness, M. D. Wilson, J. F. Barton, W. W. Hoyt, C. L. Bartholomew and Miss Helen Brumsted.

—The baby saving campaign in Chicago began May 1 with a check for \$10,000 from the packing interests, which might be considered an auspicious start. Now, if only the weather of the past month holds through the summer, the babies will thrive as they did in 1915.

—The New York State Civil Service Commission announces that the examination for Assistant Medical Inspector of Schools, Education Department, \$3,000, to be held June 23, 1917, will be open to women as well as to men and to residents and non-residents of New York state.

—The Deaconess Institute of the Swedish Evangelical Lutheran Church has purchased the property of the United States Brewing Company at Garfield avenue and Sedgwick street as the new Augustana Hospital. The property is 379 by 268 feet. The consideration named in the deed is \$100,000 and the buildings are expected to cost between \$80,000 and \$90,000.

—The new buildings of the Chicago Lying-In Hospital, at Fifty-first street and Vincennes avenue, are almost completed. The buildings and equipment will cost \$350,000, and it is expected that the institution will be ready for occupancy early in June. It will accommodate 120 patients, one-third of whom will be free, one-third, part-pay, and one-third, full-pay patients.

—The results of the competitive examinations for internship in the Cook County Hospital recently announced place 68 men on the eligible list. Of this number, 41 are graduates of Rush Medical College, 13 graduates of the University of Illinois College of Medicine and Surgery, 9 graduates of Northwestern University, and 5 of the Chicago College of Medicine and Surgery.

—On May 3, the anniversary of the death of Dr. Ricketts from typhus fever, the Howard Taylor Ricketts prize for research by students in the departments of pathology, bacteriology, and hygiene in the University of Chicago, was awarded to Enrique E. Ecker, for his work entitled, "The Pathogenic Effect and the Nature of a Toxin Produced by *Bacillus Paratyphosus B.*"

—Trustees of the Proctor Hospital Association, of Peoria, tendered the medical staff a banquet last night at the hospital which was followed by the annual election of staff officers. Dr. E. E. Gelder was elected president; Dr. J. H. Bacon, vice-president, and L. A. Burhams, secretary. Twenty guests were present and the past year was reported as the most successful in the history of the association.

—The Base Hospital No. 12, Northwestern University Medical School, started for the front May 16, under the military command of Major C. C. Collins, U. S. A., and Captain A. E. Magee, U. S. A., and Captain John A. Porter, quartermaster. Dr. Frederic A. Besley, medical director, is assisted by the following staff:

Dr. Milton Mandel, assistant medical director, and Dr. Kellogg Speed assistant surgeon, have been commissioned majors.

The other commissioned physicians are:

Captains—Drs. Payson L. Nusbaum, Cartin R. Chase, Walter H. Nadler, Philip Marshall, Dale, L. Sumner Koch, Amos G. Sherman, Joseph J. Lebovitz.

Lieutenants—Drs. Marcus Pinson Neal, W. L. Stranberg, Hillier L. Baker, John Ten Broek Bird, Stanley W. Clark, Robert William Eaton, Charles W. Freeman, Cyril John Glaspel, William E. Harwood, John Henkin, Gerard Nicholas Krost, Edwin Robert Talbot, C. W. Robertson, E. O. Rayn, Albert H. Barnett.

Dr. C. W. Freeman and Dr. S. W. Clark accompanied the unit as dentists. Miss Daisy D. Urch was in charge of the sixty-five nurses in the corps.

The death of two nurses in the party on board the Mongolia, Miss Helen B. Wood and Mrs. Edith Ayres, from the unaccountable explosion of a shell, naturally produced a most painful impression.

Marriages

FRED M. SMITH, M. D., to Miss Helen Louise Bushee, both of Chicago, recently.

LESTER IRVING OFNER, M. D., to Miss Clara Pines, both of Chicago, recently.

FELIX J. BAUR, M. D., to Miss Helen M. Sweeney, both of Chicago, April 4.

JAMES EDWARD THIELL, M. D., Belvidere, Ill., to Miss Nina Pitz, of Manitowee, Wis., April 11.

Deaths

HENRY H. JACKSON, M. D., Chicago; Homeopathic Hospital College, Cleveland, 1865; aged 77; died at his home, April 8.

MICHAEL LOWENROSEN, M. D., Chicago; Harvey Medical College, Chicago, 1897; died at his home, March 29, from pneumonia.

OTTO B. POPPE, M. D., Chicago; Hahnemann Medical College, Chicago, 1870; aged 75; died at his home, April 15, from spinal sclerosis.

EPHRAIM A. KNODLE, M. D., Arthur, Ill.; Missouri Medical College, St. Louis, 1893; aged 67; was found dead in his room in Arthur, April 3.

WILLIAM JOHN NEILL, M. D., Chicago; Rush Medical College, 1880; aged 66; an ophthalmologist; died at his home, April 18, from arteriosclerosis.

SUMNER HALE HILLIARD, M. D., Mount Dora, Fla., Hahnemann Medical College, Chicago, 1891; aged 58; formerly a practitioner of Warren, Ill.; died at his home, March 29.

NOEL BERTRAM FORD, M. D., Springfield, Ill.; Meharry Medical College, Nashville, Tenn., 1906; aged 38; a colored practitioner; died in St. John's Hospital, Springfield, March 10, from pneumonia.

WILLIAM EDWARD BAKER, M. D., Chicago; Jenner

Medical College, Chicago, 1900; College of Physicians and Surgeons, Chicago, 1902; aged 44; died in the Frances Willard Hospital, Chicago, May 5, from pneumonia.

GEORGE ROGER SMITH, M. D., Bloomington, Ill.; Northwestern University Medical School, Chicago, 1887; aged 57; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, April 21.

ROSCOE GEORGE WILLIAM KINDER, M. D., Rockford, Ill.; College of Physicians and Surgeons, Chicago, 1901; aged 41; a Fellow of the American Medical Association; a member of the attending staff of the Rockford City Hospital; died in that institution, April 19, from acute suppurative peritonitis.

EDWARD V. MACDONALD, M. D., Chicago; Harvard Medical School, 1886; aged 58; a Fellow of the American Medical Association; professor of principles of medicine in the Chicago Hospital College of Medicine; for many years a member of the staff of Cook County Hospital; died at his home, April 28, from heart disease.

MADISON G. NIXON, M. D., Columbia, Ill.; St. Louis Medical College, 1865; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; a veteran of the Civil War, in which he served as a surgeon of U. S. Volunteers; died at his home, January 12, from cerebral hemorrhage.

Book Notices

MEDICAL STATE BOARD QUESTIONS AND ANSWERS. By R. Max Goepf, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic; Assistant Professor of Clinical Medicine, Jefferson Medical College. Fourth edition, thoroughly revised. Octavo volume of 724 pages. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$4.25 net.

This popular book is presented in a new edition, the fourth. The same lines are followed as in previous editions. It has been brought up to date by including the latest accepted serologic test, and revision and additions in sections devoted to diseases of the kidneys and of metabolism. Its usefulness is evidenced by this new edition and will undoubtedly fulfill its purpose.

TRAUMATIC SURGERY. By John J. Moorhead, M. D., F. A. C. S. Adjunct Professor of Surgery in the New York Post-Graduate School and Hospital. Octavo volume of 760 pages, with 522 original illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$6.50 net, half morocco, \$8.00 net.

Emergency surgery, increasing rapidly in amount as industrial occupations are increasing, demands a special study. Frequently a minor injury presents puzzling difficulties to the operator. A poor result for

a minor injury is one of the embarrassing things which may happen.

"Traumatic Surgery," by John J. Moorhead, was written with the idea of placing information in one volume, necessary to diagnose and treat all of the more common accidental injuries as well as most of the unusual ones.

Since compensation laws are being enacted, malpractice suits, instituted because of some poor or imperfect results following injury, are more common. It is too true that accident surgery is not receiving the same study and care that is given other surgical work.

The author has prepared a book, teaching and illustrating the care of injuries received accidentally, which he has found to give the best results. Special stress has been placed on adequate drainage, while antiseptics is not relied on so much as formerly. The author also advocates the open air treatment for all wound infections. Skin grafting has been less frequently resorted to since open air and sunshine exposure have been the rule.

The book is rather profusely illustrated. It is a work of most importance to the general practitioner who frequently is confronted by emergency cases. We recommend it to the profession.

DISEASES OF THE STOMACH, INTESTINES AND PANCREAS.

By Robert Coleman Kemp, M. D., Professor of Gastrointestinal Diseases at the Fordham University Medical School. Third edition, revised and enlarged. Octavo of 1,096 pages, with 438 illustrations. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$7.00 net; half morocco, \$8.50 net.

In no field of medicine have our ideas changed more than they have regarding the diseases of the stomach and intestines. The x-ray and exploratory surgery have shown that our earlier teaching in regard to stomach conditions was in many ways erroneous. The x-ray particularly has revolutionized the treatment of stomach conditions.

This work by Dr. Kemp is a rather exhaustive work, replete with such information as we have today. It seems that any conditions found in the stomach must be studied here. There are several chapters devoted to special subjects. Prominent attention has been given cancer of the stomach, including the precancerous condition of gastric ulcer. Intestinal conditions receive as strict attention as does the stomach. The surgical treatment of all stomach and intestinal pathologies are discussed freely, and the methods of many of the famous surgeons are recited. The study of the pancreas, while occupying less space, is brought up to date.

There are 438 illustrations, many of which are radiograms, and which are especially instructive, particularly as an aid to diagnosis.

We think the work is an excellent one and one of marked worth for the general practitioner.

THE SURGICAL CLINICS OF CHICAGO. April, 1917. Volume I, Number 2. With 99 illustrations. Published

bi-monthly. W. B. Saunders Company, Philadelphia and London.

The clinicians for this number are Drs. A. J. Oschner, N. M. Percy, John Ridlon, Arthur Dean Bevan, E. Wyllys Andrews, Albert E. Halstead, Malcolm L. Harris, Carl Back, Allen B. Kanel, D. N. Eisendrath, Carl B. Davis, D. B. Phemister, Louis A. Greensfelder, Hugh McKenna, Frederick G. Dyas.

The subjects treated in this number are all important ones and present a wide variation of clinical studies. The names of the clinicians are sufficient guarantee of authority.

POTTER'S COMPEND OF MATERIA MEDICA, THERAPEUTICS AND PRESCRIPTION WRITING, with especial reference to the physiological action of drugs. Based upon the 9th revision of the U. S. Pharmacopœia, including also many Unofficial Remedies. By A. D. Bush, B. S., M. D., Professor of Physiology and Pharmacology, Medical Department, University of Southern California. Eighth edition revised. Price, \$1.25. P. Blakiston's Son & Co., Philadelphia.

This work is an exceedingly popular compend, intended primarily for the student, but also a useful short reference for the busy physician.

A PRACTICAL TREATISE ON FRACTURES AND DISLOCATIONS. By Lewis A. Stimson, B. A., M. D., LL. D. (Yale), Professor of Surgery in Cornell University Medical College, New York; Consulting Surgeon to New York and Bellevue Hospitals. Corresponding Member of the Societe De Chirurgie of Paris. Eighth edition, revised and enlarged. With 475 illustrations and 39 plates in monotype. Lea & Febiger, New York and Philadelphia, 1917.

An eighth edition of any medical book means two things: First, that the book has been a very popular one with the medical profession, and second, that the work is being kept up to date.

This work has for many years enjoyed an enviable reputation, and the older men, who have had access to one of the earlier editions, will be pleased with a new edition. The younger man who is building his library cannot afford to be without it.

Fractures and dislocations are receiving more attention today than they have formerly, and this condition leads to the investigation of various modes of treatment. One of the largest revisions in this edition is in treatment, or rather in discussing the relative merits of various treatments for a given case. The subject, which has been taken up more extensively in this edition, is dislocation of the shoulder in infancy.

The present war, if continued, will result in very many fractures of various types, and it behooves the medical man to be prepared. The illustrations are profuse and are good. The work is an excellent one, and we cheerfully recommend it.

CANCER, ITS CAUSE AND TREATMENT. By L. Duncan Bulkley, A. M., M. D., Senior Physician to the New

York Skin and Cancer Hospital, etc. Volume II. 12mo., cloth (uniform with Volume I). \$1.50 net. Paul B. Hoeber, Publisher, 67-69 East 59th street, New York.

This book is a further exposition by Dr. Bulkley upon the medical aspects of cancer. His results are indeed wonderful and deserve great attention. Time will tell whether his views are correct, and we hope they are. He presents his method of medical and dietetic treatment fully, and it deserves careful study.

THE INTERNAL SECRETIONS. Their Physiology and Applications to Pathology. By Dr. E. Gley, Professor of Physiology in the College of France, etc. Translated from the French and edited by Dr. M. Fishberg. 12mo., cloth. 240 pages. Price (about), \$2.00 net. Paul B. Hoeber, Publisher, 67-69 East 59th street, New York.

This is an excellent short work on the internal secretions, their physiology and applications to pathology. It covers the ground concisely, making it especially useful for the practitioner who desires to learn enough about the endocrine glands and their secretions to make them available for therapeutic uses.

HOW TO RUN AN AUTOMOBILE. By Victor W. Page, M. S. A. E., Member of the Society of Automobile Engineers; Author of "Automobile Repairing Made Easy," etc., etc. 178 pages. 72 specially made engravings. Price, \$1.00. The Norman W. Henley Publishing Company, New York.

This treatise gives concise instructions for starting and running all makes of gasoline automobiles, how to care for them, and gives distinctive features of control.

TEXT-BOOK ON OPHTHALMOLOGY. By Hofrat Ernst Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized translation from the 12th German edition. Completely revised and reset, with numerous additions specially supplied by the author, and otherwise much enlarged by Alexander Duane, M. D., Surgeon, Emeritus Knapp Memorial Hospital, New York. With 462 illustrations. 1,067 pages. 5th edition. Price, \$7.00. J. B. Lippincott Company. Philadelphia and London.

This text-book, which has become very popular in this country, has now reached its fifth American edition. The subject of ophthalmology is covered thoroughly, and with the additions by Dr. Duane, to make the subject conform to American practice, makes this book especially valuable to the American surgeon.

The subject matter is divided into five parts: Part I—Introduction, with general physiology of the eye. Part 2—Examination of the eyes. Part 3—Diseases of the eye. Part 4—Anomalies of refraction and accommodation. Part 5—Operations.

It would indeed be difficult to furnish a better text-book on ophthalmology. The publishers are to be commended in placing this new edition before the profession.

THE PRACTICAL MEDICAL SERIES. Volume 1. General Medicine. Edited by Frank Billings, M. S., M. D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago. Assisted by Burrell O. Raultson, Assistant Pathologist, Presbyterian Hospital. Series 1917. Price, this volume, \$1.50; entire series, 10 volumes, \$10.00.

This series is so well known, or ought to be, by the general practitioner, for whom this series is especially compiled, that it requires no especial mention. The reviews are carefully written and enable the general practitioner with small cost to keep up with the advance in the medical sciences.

BOTANIC DRUGS: Their Materia Medica, Pharmacology and Therapeutics. By Thomas S. Blair, M. D., Editor Medical Council; Author of "Public Hygiene," "A Practitioner's Handbook of Materia Medica and Therapeutics," and "Pocket Therapeutics"; formerly neurologist to Harrisburgh (Pa.) Hospital. Large type, fully indexed, 394 pages. Price, \$2.00. Cincinnati: Therapeutics Digest Pub. Co., 1917.

The author has endeavored to present this subject in a concise but not incomplete form. The subject of botanic drugs is one that should be studied carefully by every physician, especially in these days of war, when a great shortage of the more frequently used synthetics exists.

Botanic drugs are very little known by the average physician, but with the aid given by this excellent work, the usefulness of these drugs will be evident, and more frequently availed of, with profit to patient and physicians. Dr. Blair is well fitted as a pharmacologist and practicing physician to present this subject to the profession.

DISEASES OF CHILDREN. A Manual for Students and Practitioners. By George M. Tuttle, M. D., Clinical Professor of Pediatrics, Washington University Medical School; Consulting Physician, St. Louis Children's Hospital; Attending Physician, St. Luke's Hospital; Consulting Pediatrician, St. Louis Maternity Hospital; and Phelps G. Hurford, M. D., Pediatrician, St. Louis Lutheran Hospital; Assistant in Pediatrics, Washington University Medical School; Physician to Out-Patients, Pediatric Clinic of Washington University; Associate Physician, St. Louis Hospital for Infectious Diseases. 3rd edition. Thoroughly revised and enlarged. Illustrated with 47 engravings and 3 plates. Lea & Febiger, Philadelphia and New York, 1917.

This manual of diseases of children is thoroughly abreast of the times. It includes all the well established facts in pediatrics in a not too small volume. Brevity, logic and common sense are observed throughout. For the student it is an excellent manual, and for the physician who desires to look up some point without delving through pages of matter, it can be recommended.

Illinois Medical Journal



OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 1

CHICAGO, JANUARY, 1917

\$2.00 a Year

CONTENTS

ORIGINAL ARTICLES	PAGE		PAGE
The Roentgen Diagnosis of Chest Lesions. <i>Adolph Hartung, M. D., Chicago</i>	1	A Report of an Epidemic of Typhoid Fever. <i>Wm. M. Friend, M. D., Park Ridge, Ill.</i>	23
Health Insurance from the Standpoint of a Physician. <i>George Thomas Palmer, M. D., Springfield, Ill.</i>	5	A Brief Review of Pavlov's Work. <i>James J. Moorehead, M. D., Chicago</i>	29
Dementia Praecox Studies. Etiology and Treatment. <i>Bayard Holmes, M. D., Chicago</i>	9	Diabetes Mellitus — Why do Glycosuria and Acidosis Increase During Work in Some Diabetics? A Suggestion in Treatment. <i>Max Benjamin Leviton, M. D., Chicago</i>	34
Vaccine Therapy in the Treatment of Modern Diseases. <i>Frank M. Wood, M. D., Chicago</i>	13	Mental Mechanisms. <i>B. F. Williams, M. D., Lincoln, Neb.</i>	35
Symptoms and Diagnosis of Infantile Paralysis. <i>Thos. McEachern, M. D., Rochelle, Ill.</i>	21	Cerebro-Spinal Lues Treatment. <i>Chas. D. Humes, M. D., Indianapolis, Ind.</i>	38

(Continued on page 32)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

The Surgical Clinics of Chicago

Clinic of Dr. A. D. Bevan, Presbyterian Hospital
Hernia: inguinal; femoral; diaphragmatic — Gallstone Disease.

Clinic of Dr. A. J. Ochsner, Augustana Hospital
Goiter: diagnosis; treatment; technic of operation; after-treatment—Hernias in children—Femoral hernias.

Clinic of Dr. E. Wyllys Andrews, Mercy Hospital
Repair of fractured patella—New operation for varicocele —Flap method of skin grafting.

Clinic of Dr. L. L. McArthur, Michael Reese Hospital
A modification of the technic of gastric surgery.

Clinic of Dr. Dean D. Lewis, Presbyterian Hospital
Nerve suture: (a) Gunshot wound of brachial plexus; (b) Paralysis of external popliteal—drop-foot; (c) Ulnar nerve paralysis—Congenital pyloric stenosis—Ramsted operation —Cystic disease of breast and plastic operation.

Clinic of Dr. Carl Beck, North Chicago Hospital
Open wound treatment of acute and chronic bone and joint infection—Open wound treatment of empyema.

Clinic of D. N. Eisendrath, Cook County Hospital
Head injuries—With intracranial involvement—Perforating ulcer of the lesser curvature of the stomach.

Issued serially, one octavo of 200 pages, illustrated, every other month. Per Clinic Year (February to December): Cloth, \$12.00 net; Paper, \$8.00 net.

Clinic of Dr. Kellogg Speed, Mercy Hospital
Tendoplasty for wrist-drop.

Clinic of Dr. M. L. Harris, Henrotin Hospital
Laryngectomy; local anesthesia.

Clinic of Dr. S. C. Plummer, St. Luke's Hospital
Calculus anuria.

Clinic of Dr. E. W. Ryerson, Chicago Polyclinic Hospital
Ankylosis of elbow.

Clinic of Dr. John Ridlon, Presbyterian Hospital
Congenital dislocation of hip.

Clinic of Dr. D. B. Phemister, Presbyterian Hospital
Tumor of the jaw—Pulmonary osteo-arthritis—Echinococcus cyst of liver complicated by post-operative sub-diaphragmatic pyopneumothorax.

Clinic of Dr. Carl B. Davis, Presbyterian Hospital
Suppurative pericarditis.

Clinic of Dr. Frederick G. Dyas, Cook County Hospital
Open treatment of infected wounds.

Clinic of Dr. Allen B. Kanavel, Wesley Hospital
Fascial transplantation in spina bifida, extrophy of bladder and defects of the abdominal wall.

W. B. SAUNDERS COMPANY

Philadelphia and London

This Issue, 6750 Copies



THIS IS THE PACKAGE!

(others are imitations)

And is your guarantee and protection against the concerns, who led by the success of the Horlick's Malted Milk Company, are manufacturing imitation malted milks which cost the consumer as much as "Horlick's."

Always specify

Horlick's, the Original

And avoid substitutes

Our Records Prove

THAT the most particular prescribers and the most discriminating dispensers will not knowingly accept pharmacals of a lower grade than our "Quality Products."

High standards—uniform primeness—scientific processes—ethical exploitation and mutually fair prices—these are the fundamental reasons for our past success. And they are also the reasons why we earnestly solicit your continued co-operation.

"QUALITY PRODUCTS" HONESTLY MADE BY A "QUALITY HOUSE"

Sharp & Dohme

PURVEYORS TO YOUR PROFESSION
SINCE 1860



During Pregnancy

STANOLIND Liquid Paraffin is an admirable laxative for use during pregnancy. It produces no irritation of the bowel, has not the slightest disturbing influence upon the uterus, and no effect upon the fetus.

The regular use of Stanolind Liquid Paraffin in the later months of pregnancy is an effective means of avoiding some of the serious dangers attending the parturient state because of sluggish bowel action.

Stanolind Liquid Paraffin counteracts to a definite extent an unfortunate dietetic effect on the intestine in this manner; the concentrated diet of our modern civilized life contains so little indigestible material that the residue is apt to form a pasty mass which tends to adhere to the intestinal wall. Stanolind Liquid Paraffin modifies this food residue, and thus tends to render the mass less adhesive.

Stanolind Liquid Paraffin is mechanical in action, lubricating in effect. Its *suavity* is one of the reasons why increase of dose is never needful after the proper amount is once ascertained.

*A trial quantity with informative
booklet will be sent on request.*

Standard Oil Company

(Indiana)

72 West Adams Street

CHICAGO, U. S. A.

Sugar is an Extremely Important Constituent in Infant Feeding BUT YOU MUST SELECT THE RIGHT SUGAR

A large part of the troubles of infant feeding has been shown to be due to the ingestion of milk sugar or cane sugar.

MEAD'S DEXTRI-MALTOSE

from the standpoint of DIGESTIBILITY and ASSIMILABILITY represents the properly balanced carbohydrate. Composition—Maltose 52%, Dextrin 41.7%, Sodium Chloride 2%.

Administration—1½ oz. Dextri-Maltose (2 heaping tablespoonfuls) to any milk and water mixtures suited to age and weight.

Literature and Samples on Request

Mead Johnson & Co.

Evansville, Ind.

There are many grades of crude drugs
offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch
Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY

Sherman's Bacterial Vaccines Preparations with a Record for Reliability

All the vaccines usually employed in the treatment of infectious diseases marketed in specially devised aseptic antiseptic bulk packages, insuring absolute safety in withdrawing contents.

5 c.c. for \$1.00 18 c.c. for \$3.00 Ampules, 6 in box, \$1.50

Daily Users of Vaccines use Sherman's

SHERMAN'S NEW BOOK

JUST OFF THE PRESS

Devoted to the Application of

BACTERIAL VACCINES

Explaining their therapeutic action—How, When and Where to use them.

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for \$2.50.

WRITE FOR LITERATURE

G. H. SHERMAN, M. D.

3334 Jefferson Ave. E.

Detroit, Mich.



Bran Food As You Want It

With the bran in flake form—extra efficient.

A tender, soft-wheat bran, which isn't gritty.

Foods 25 per cent bran, to make them effective.

Tempting foods, of which no one ever tires.

Varied foods, all with the same bran content.

We have developed these foods under physicians' direction. And thousands of medical men consider them the best bran foods produced.

Pettijohn's Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company
Chicago (1486)

Antituberculous	FIROLYPTOL with KREOSOTE	Antistrumous
FORMULA:	Cotton Seed Oil Morson's White Label Kreosote	Firwein, Eucalyptol
<i>Free Samples to the Profession</i>		
THE TILDEN COMPANY		
Manufacturing Pharmacists and Chemists		
NEW LEBANON, N. Y.	Since 1848	ST. LOUIS, MO.

THE Pennoyer
Established 1887
 Kenosha, Wis., between Chicago and Milwaukee on the North-Western R. R. Fine Health Resort and Sanitarium on Lake Michigan. Beautiful environment—a mile of lake shore. For illustrated prospectus address:
 N. A. Pennoyer, M. D.

"Sutures fit for Surgery"
DAVIS & GECK, INC.
 Brooklyn, N.Y., U.S.A.

DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. *Mfrs. of* Fine Pharmaceuticals and Hypodermic Tablets
 215-217-219 W. Ohio St. CHICAGO Telephone North 1704

MELLIN'S FOOD

In every step in the manufacture of Mellin's Food there is constantly in view the ultimate object of making a product of definite composition

to Accomplish a Definite Purpose.

This purpose is to furnish certain food elements which, when added to cow's milk, make it a suitable food for an infant. The food elements in Mellin's Food—carbohydrates (maltose and dextrins), proteins and salts—when dissolved in water and added to cow's milk so change the balance of nutrition in cow's milk that the resulting modification presents fat, proteins, carbohydrates and salts in the proportion needed

for the Development of Infantile Life.

The success of Mellin's Food, therefore, depends not upon any one of the food elements of which it is made up, but upon the definite composition of "Mellin's Food as a whole" as a means to enable the physician to modify cow's milk to meet the requirements of infant feeding

in a Scientific, Rational and Efficient Manner.

MELLIN'S FOOD COMPANY,

BOSTON, MASS.



WILL STOP THAT COLD

An Emergency Remedy of Proven Value

Increasing thousands of doctors are demonstrating, each year, the value of **CALCIDIN** in the treatment of Coughs, Colds, Croup, Influenza, Grip, Bronchitis, Rhinitis, Laryngitis and all other catarrhal conditions of the respiratory tract.

Inclement weather and artificial heating of houses bring on a train of these and other winter troubles.

Be prepared to meet these emergencies. Provide yourself now with a plentiful supply of **CALCIDIN (Abbott)**. It provides a reliable basic treatment. Calcidin contains 15% available iodine. It should be used wherever iodine is indicated.

Calcidin should also be used in connection with Abbott's Pneumococcus-Combined Bacterin in your pneumonia cases.

PRICES:

1-3-grain tablets.....	100, \$0.23;	500, \$0.75;	1000, \$1.35
1-grain tablets.....	100, .34;	500, 1.30;	1000, 2.45
2 1-2-grain tablets.....	100, .54;	500, 2.30;	1000, 4.45
5-grain tablets.....	100, .80;	500, 3.60;	1000, 7.05
Pure powder, in 1-ounce packages, per dozen.....			5.00
In less than half-dozen quantities, per package.....			.50

For Canadian prices, add 25%.

Delivery prepaid for cash with order. Money back if not satisfied.

For dispensing supplies send your orders to the nearest point. See below. For the convenience of your pharmacist, jobbers are stocked. If you prescribe, be sure to specify "Abbott's," thus guarding against worthless imitations.

A trial sample of the various tablets listed, accompanied by literature in detail, will be sent on request.

THE ABBOTT LABORATORIES

CHICAGO - NEW YORK

SEATTLE

SAN FRANCISCO

LOS ANGELES

TORONTO

BOMBAY

MANY A SUCCESSFUL PHYSICIAN

has learned from practical experience to
appreciate the therapeutic efficiency of

Gray's Glycerine Tonic Comp.

FORMULA DR. JOHN P. GRAY

Its prompt effect on the appetite, digestion
and nutrition can be confidently relied upon.

If you are not personally familiar with the remarkable
tonic properties of "Gray's" write for
special six-ounce sample.

CONSTITUENTS

Glycerine
Sherry Wine
Gentian
Taraxacum
Phosphoric Acid
Carminatives

DOSAGE—ADULTS: Two to four teaspoon-
fuls in a little water before meals three or
four times daily.

CHILDREN—One-half to one teaspoonful in
water before meals.

INDICATIONS

Auto-Intoxication
Atonic Indigestion
Anemia
Catarrhal Conditions
Malnutrition
Nervous Ailments
General Debility

THE PURDUE FREDERICK CO., 135 CHRISTOPHER STREET, NEW YORK.

RECEIVED BY

SUBMARINE

"DEUTSCHLAND"

ADALIN (Sedative and Hypnotic) 5 gr. tablets,
bottles of 25

SAJODIN (Improved Iodin Medication) 8 gr. tablets,
tubes of 20

In spite of very high submarine freight and insurance and increased duty,
the prices of these products have been advanced only 15c per package

WE CAN AGAIN SUPPLY

SALOPHEN

Powder in ounces and 5 gr. tablets

TANNIGEN

Powder in ounces

LITERATURE ON REQUEST

THE BAYER COMPANY, Inc., 117 HUDSON STREET, NEW YORK, N. Y.

Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

Main College Building and Willard Hospital

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant.

The Faculty consists of men who have distinguished themselves as medical educators.

The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction.

The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

A Post-Graduate School for Practitioners of Medicine

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

THE COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS



Minimum admission requirements to the Freshman year, fifteen units of work from an accredited high school and in addition two years in a recognised university or college involving at least one year in college physics, biology, chemistry and six college hours in French or German.

For course of Medical study, four years are required. Eligible students will receive the degree of B. S. at the completion of the Sophomore year. ¶ Well equipped laboratories and good hospital facilities.

¶ Excellent location in the heart of Chicago's great medical center.
¶ Collegiate year begins September 28th, 1916. ¶ For full information concerning course of study, fees, etc., address Secretary, Box 51 COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS Congress and Honore Streets Chicago, Illinois

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

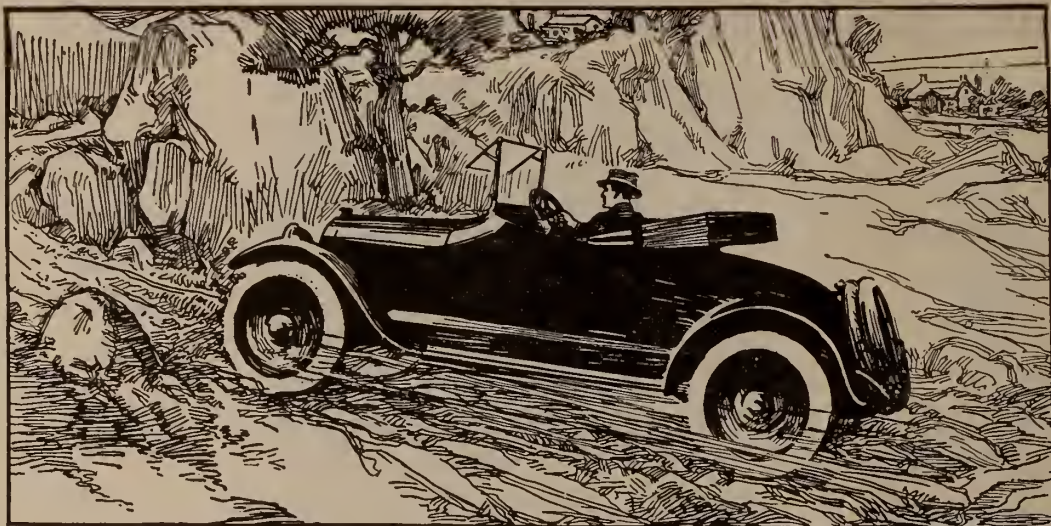
"BEVERLY FARM"

Home and School for Nervous and Backward Children

5 buildings, schools and gymnasium, 176 acres of land, 40 acres of timber, containing beautiful Camp Belle log cabin for recreation; separate buildings for boys and also children under 10 years of age. Thirty-six years experience. Consultations at home if desired. Publicity avoided. Address all communications to

**W. H. C. SMITH, M. D., Superintendent
GODFREY, MADISON CO., ILLINOIS**

"Beverly Farm" was awarded Grand Prize by Committee of Awards of the Louisiana Purchase Exposition



Doctor, You Know That Delays Are Dangerous!

You can't abide jerky power or a motor that is unreliable. If you use Polarine, lubrication begins the minute your engine starts.

Friction is minimized—Polarine covers even the remotest friction surface—Polarine minimizes repairs and adds power and life to your motor. The temperature does not affect its perfect lubricating properties.

Polarine

FRICION REDUCING MOTOR OIL

flows as freely at zero as at 100 degrees. It maintains the correct lubricating body at any motor speed or temperature.

The Standard Oil Company recommends its use for any make or style of car. Order a half barrel today. It costs less that way than in smaller quantities.

Standard Oil Company (Indiana) Chicago, U. S. A.

Use Red Crown Gasoline and get more power, more speed, more miles per gallon

INDEX TO ADVERTISERS

Abbott Laboratories.....	7
Allied Bazaar	12
A. Arend Drug Co.....	27
Bayer Company.....	8
Bellevue Sanitarium	22
Beverly Farm School.....	29
Chicago College of Medicine and Surgery.....	29
Chicago Eye, Nose & Throat College.....	29
Chicago Fresh Air Hospital.....	20
Chicago Laboratory	36
Chicago Maternity Hospital	29
Chicago Pasteur Institute	9
Cincinnati Sanitarium	24
College of Medicine, Univ. of Ill.....	29
Cocroft, Susanna	26
Columbus Medical Laboratory.....	12
Crittenton, Chas. N., Co.....	34
Danville Radium Institute.....	17
Edward Sanatorium	21
Fletcher's Sanatorium	24
Gradwohl Biological Laboratories.....	12
Harvey, G. F.....	19
Horlick's Malted Milk Co.....	2
Hygeia Hospital	22
Illinois Nurses Registry	26
Kenilworth Sanitarium	22
Laboratory of Pathology and Bacteriology.....	13
Lambert Pharmaceutical Company.....	13
Lederle Antitoxin Laboratory.....	35
Maltbie Chemical Company.....	28
Medical Protective Co.....	11
Mead, Johnson & Co.....	4
Mellin's Food Co.....	6
Milwaukee Sanitarium	23

Mueller & Co., V.....	10
Mulford, H. K., & Co.....	27
Nelson, Baker & Co.....	21
Norbury Sanitarium	21
Oconomowoc Health Resort.....	20
Ottawa Tuberculosis Colony.....	18
Parke, Davis & Co.....	6
Pennoyer Sanitarium	24
Peoria Mud Baths.....	25
Peoria Sanatorium	25
Petty & Wallace's Sanitarium.....	32
Phillips Co., Chas. H.....	34
Pine Sanatorium	4
Pitman-Moore Co.	20
Pottenger Sanatorium	8
Purdue, Frederick, Co.....	5
Pure Gluten Food Co.....	5, 33
Quaker Oats Co.	36
Radium Institute	23
Ransom Sanitarium	26
Riverside Sanitarium	front cover
Saunders Co., W. B.....	6
Searle & Co., G. D.....	2
Sharp & Dohme.....	5
Sherman, G. H., M. D.....	3, 30
Standard Oil Co.....	11
Storm, Katherine L., M. D.....	23
Sulphur Springs Sanitarium.....	9
Swan-Myers Co.	13
Thompson's Malted Food Company.....	6
Tilden Co., The.....	24
Waukesha Moor (Mud) Bath Co.....	22
Waukesha Springs Sanitarium.....	25
Weirick's Sanitarium	11
Wood, Dr. Frank M.....	16
Wander, Dr. A.....	

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.....	11
--------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.....	3, 30
----------------------	-------

FOOD

Arend-Adamick Koumyss	27
Horlick's Malted Milk Co.....	2
Mead, Johnson & Co.....	6
Mellin's Food Co.....	6
Pure Gluten Food Co.....	5
Quaker Oats	5, 33
Thompson's Malted Food Company.....	13
Wander's Ovaltine	16

HOSPITAL

Chicago Fresh Air Hospital.....	20
Chicago Maternity Hospital.....	29
Hygeia Hospital	22

INVESTMENTS AND INSURANCE

Medical Protective Co.....	11
----------------------------	----

LABORATORY

Abbott Laboratories	7
Chicago Laboratory	36
Columbus Medical Laboratory.....	12
Gradwohl Biological Laboratories.....	12
Laboratory of Pathology and Bacteriology.....	13
Swan-Myers Co.	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.....	front cover
-------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery.....	29
Chicago Eye, Ear, Nose and Throat College.....	29
College of Medicine, Univ. of Ill.....	29

MUD BATHS

Peoria Mud Baths.....	24
Waukesha Moor (Mud) Bath Co.....	24

NURSES

Illinois Nurses Registry	26
--------------------------------	----

PHARMACEUTICALS

Abbott Laboratories	7
Bayer Company.....	8
Crittenton, Chas. N., Co.....	34
Harvey, G. F.....	19
Kenilworth Sanitarium	22
Lederle Antitoxin Laboratory.....	35
Lambert Pharmacal Company.....	13
Maltbie Chemical Company.....	28
Mead, Johnson & Co.....	4
Mulford, H. K., & Co.....	10
Nelson, Baker & Co.....	27
Parke, Davis & Co.....	18
Phillips Co., Chas. H.....	32
Pitman-Moore Co.	4
Purdue, Frederick, Co.....	8
Sherman's Bacterins	5
Searle & Co., G. D.....	6
Sharp & Dohme.....	2
Swan-Myers Co.	9
Tilden Co., The.....	6
Wood's Bacterins	11

SANATORIA & SANITARIA

Bellevue Sanitarium	22
Cincinnati Sanitarium	24
Danville Radium Institute.....	17
Edward Sanatorium	21
Fletcher's Sanatorium	24
Kenilworth Sanitarium	22
Norbury Sanitarium	21
Milwaukee Sanitarium	23
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Pennoyer Sanitarium	6
Peoria Sanitarium	25
Petty & Wallace's Sanitarium.....	25
Pine Sanatorium	34
Pottenger Sanatorium	20
Radium Institute	36
Ransom Sanitarium	23
Riverside Sanitarium	26
Sulphur Springs Sanitarium.....	23
Waukesha Springs Sanitarium.....	22
Weirick's Sanitarium	25

SURGICAL INSTRUMENTS

Mueller & Co., V.....	
-----------------------	--

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and Invalid feeding.

Phillips' Phospho-Muriate of Quinine Compound NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.
NEW YORK LONDON

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

A Case of Juvenile General Paresis. Frederick C. Potter, M. D., Indianapolis, Ind.....	40
Report of a Case of Bilateral Lenticular Degeneration. Max A. Bahr, M. D., and Frederick C. Potter, M. D., Indianapolis, Ind.....	44
Education of the Feeble-minded. George Bliss, M. D., Fort Wayne, Ind.....	46
A Preliminary Welfare Report of Cases Recently Discharged From the Watertown State Hospital. Frederick A. Causey, M. D., East Moline, Ill.....	47
A Case of Alcoholic Polyneuritis With Unusual Trophic Disturbances. G. B. Hassin, M. D., Chicago.....	51
The Accessory Sinuses of the Nose. Wilfred H. Gardner, M. D., Bloomington, Ill.....	54

EDITORIAL.

Health Insurance Bill.....	57
Birth Control.....	57
Giving Commissions to Physicians for Prescriptions.....	57
Medical Provisions of the Act for Health Insurance....	58
Health of the Navy.....	61
Pay the Physician.....	61
Physicians Excluded from New Hospital.....	62
Medical Legislation	62
Notice	63

PUBLIC HEALTH.

Annual Summary of State Health Work.....	63
Exclusion of Unvaccinated Children.....	64
A Service Guide of the State Board of Health.....	64
Health Circulars	65

SOCIETY PROCEEDINGS.

Adams County.....	66
Cook County:	
Chicago Medical Society.....	67
Chicago Ophthalmological Society.....	69
Grundy County.....	72
Iroquois-Ford County.....	72
McHenry County.....	72
Rock Island County.....	73
Personals	73
News Items.....	74
Marriages	75
Deaths	76

COUNTY SOCIETIES—Continued

Pope County
J. A. Fisher, Pres.....Brownfield
L. S. Barger, Secy.....Golconda

Pulaski County
J. F. Hagan, Pres.....Mound City
W. R. Wesenberg, Secy.....Mound City

Randolph County
Wm. R. McKenzie, Pres.....Chester
John P. Grimes, Secy.-Treas.....Menard

Richland County
A. T. Telford, Pres.....Olney
E. H. Horner, Secy.....Olney

Rock Island County
Geo. A. Wiggins.....Milan
A. E. Williams, Secy.....Rock Island

St. Clair County
B. H. Portuondo, Pres.....Belleville
A. E. Hansing, Secy.....Belleville

Saline County
M. D. Impson, Pres.....Brushy
E. W. Cummins, Secy.....Harrisburg

Sangamon County
Arthur E. Prince, Pres.....Springfield
H. B. Henkel, Secy.....Springfield

Schuyler County
A. W. Ball, Pres.....Rushville
J. C. Steiner, Secy.....Rushville

Scott County
J. W. Eckman, Pres.....Winchester
H. H. Fletcher, Secy.....Winchester

Shelby County
F. A. Martin, Pres.....Tower Hill
Frank P. Auld, Secy.....Shelbyville

Stark County
James R. Holgate, Pres.....Wyoming
Clyde Berfield, Secy.....Toulon

Stephenson County
W. B. Peck, Pres.....Freeport
N. C. Phillips, Secy.....Freeport

Tazewell County
H. L. Yoder.....Morton
F. C. Gale, Secy.....Pekin

Union County
G. W. Marrow, Pres.....Anna
E. V. Hale, Secy.....Anna

Vermillion County
J. B. Morton, Pres.....Ridge Farm
Solomon Jones, Secy.....Danville

Wabash County
P. G. Manley, Pres.....Mt. Carmel
A. A. Aukerbrandt, Secy.....Mt. Carmel

Warren County
Philo B. Conant, Pres.....Roseville
H. M. Camp, Secy.....Monmouth

Washington County
D. S. Neer, Pres.....Beaucoup
P. B. Rabenneck, Secy.....Nashville

Wayne County
T. J. Hilliard, Pres.....Fairfield
Ostella F. Blakely, Secy.....Fairfield

White County
C. B. Staley, Pres.....Enfield
John Niess, Secy.....Carmi

Whiteside County
W. H. Durkee, Pres.....Fulton
H. N. Schmaling, Secy.....Fulton

Will County
A. L. Schreffler, Pres.....Joliet
Marion K. Bowles, Secy.....Joliet

Williamson County
J. G. Farmley, Pres.....Marion
H. A. Felts, Secy.....Marion

Winnebago County
D. B. Penniman, Pres.....Argyle
C. M. Ranseen, Secy.-Treas.....Rockford

Woodford County
H. N. Barth, Secy.....Metamora
W. C. Colton, Pres.....Benson



Extra-Grade Oat Food

Quaker Oats dominates—all the world over—because it is flaked from queen grains only.

We discard all the puny grains, starved and insipid. The result is, we get but ten pounds from a bushel.

But another result is a luxury dish—flavory and fragrant—in which millions of children delight.

Quaker Oats

Large, Luscious Flakes

We cannot better the oat, because Nature makes it perfect. But we can, by selection, get the cream of the oats, and make the dish doubly attractive.

That is what we do.

10c and 25c Per Package
Except in Far West and South

The Quaker Oats Company

Chicago

(1487

Hydroleine



Made from pure Norwegian cod-liver oil emulsified after a scientific formula by approved processes.

The need of many children for cod-liver oil has been met with marked success by Hydroleine. They take it willingly; they—as well as adults—like its distinctive nutty flavor. Hydroleine is also exceptionally digestible. While its scope of usefulness is widened by its palatability and digestibility, it is always notably dependable.

Sold by druggists.
THE CHARLES N. CRITTENTON CO.
 115 Fulton St., New York
 Sample will be sent to physicians on request.

WANTED, FOR SALE, AND RENT DEPARTMENT

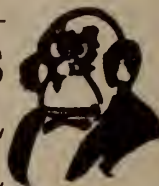
Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

1,000 GUMMED LABELS, 50c, NAME AND ADDRESS. Why pay more? Work guaranteed. Attractive prices on stationery and other printing. Send for samples or trial order. Minute Man Printing House, Lapel, Indiana.

DRUG AND LIQUOR HABITS—SANITARIUM
 established eighteen years. No suffering, no danger, close medical care, good nursing. Pleasant surroundings, quick and absolutely satisfactory results. Ralph Sanitarium, 529 Highland Avenue, Kansas City, Mo.

I AM SORRY I
 did NOT advertise

—in the—
**ILLINOIS
 MEDICAL
 JOURNAL**



Resident Physician
James H. Appleman, M. D.
CONSULTING STAFF
Surgeon
Gustav M. Blech, M. D.
 104 South Michigan Ave.
Genito-Urinary
Frank Wieland, M. D.
 122 South Michigan Ave.
Internist
Walter B. Metcalf, M. D.
 25 East Washington St.
Electro-Therapy
Emil H. Grubbe, M. D.
 130 North State Street
Throat, Nose and Ear
Richard H. Street, M. D.
 25 East Washington St.
Pathologist
W. Henry Wilson, M. D.
 3129 Rhodes Ave.
Oculist
Carleton A. Harkness, M. D.
 29 East Madison St.

Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. **No Suffering.** Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
 Local and Long Distance Telephone, Calumet 4543

Hay Fever

Convincing Clinical Data Prove Value of Pollen Vaccine

DURING 1915, LEDERLE'S *Pollen Vaccine* was used by over 600 physicians for the prophylaxis and treatment of Hay Fever. The clinical data submitted to us show *83 per cent favorable results* from Pollen Vaccine as a prophylactic against Hay Fever, and *89 per cent favorable results* in the treatment of Hay Fever. Asthmatic symptoms were relieved in 84.2 per cent of the cases.

LEDERLE'S is a combined *Pollen Vaccine* containing pollen from all the common grasses, weeds and flowering plants which are known to be important in causing hay-fever in the spring and fall.

Lederle's POLLEN VACCINE is supplied in the following packages:

1. Complete vaccine treatment, containing doses 1 to 15, inclusive. Price..... **\$15.00**
2. Series A, containing doses 1 to 5 only. Price..... **5.00**
3. Series B, containing doses 6 to 10 only. Price..... **5.00**
4. Series C, containing doses 11 to 15 only. Price..... **5.00**

Booklet sent on request.

Lederle Antitoxin Laboratories

Schieffelin & Co., Distributors

New York

THE RADIUM INSTITUTE

1604 Mallers Building, 59 East Madison Street
Corner Wabash Avenue, Telephone Randolph 5794

CHICAGO

DR. FRANK E. SIMPSON, *Director*

Treatment of Malignant and Benign Growths with Radium. Post-Operative Prophylactic Radiations. Applicators for all purposes, including many of Special Designs.

COUNCIL: DR. F. A. BESLEY, DR. E. C. DUDLEY, DR. A. R. EDWARDS,
DR. O. T. FREER, DR. M. HERZOG, DR. L. E. SCHMIDT, DR. G. F. SUKER.



CHICAGO LABORATORY

CLINICAL—ANALYTICAL

Marshall Field Annex Building, 25 E. Washington St., CHICAGO

Established 1904

Phone Randolph 3610

WASSERMANN TEST

Controlled by the Noguchi System

SPINAL FLUIDS

COMPLEMENT FIXATION for GONORRHEA

COMPLEMENT FIXATION for TUBERCULOSIS

All other Laboratory Tests

Send for Booklet of Instructions

Prompt reports by mail, telephone and telegraph

Our names and reputations stand back of our work.

RALPH H. WEBSTER, M. D., Ph. D.

Director of Chemical Department

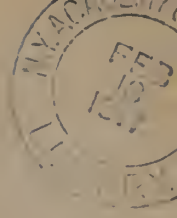
THOMAS L. DAGG, M. D.

Director of Pathological Department

C. CHURCHILL CROY, M. D.

Director of Bacteriological Department





Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 2 CHICAGO, FEBRUARY, 1917 \$2.00 a Year

CONTENTS

ORIGINAL ARTICLES	PAGE	PAGE	
Some Objections to Health Insurance Legislation. <i>Edward H. Ochsner, M. D., Chicago</i>	77	The Therapeutic Value of the U. S. P. Tincture of Iodine in the Treatment of Tuberculosis and Other Infectious Diseases, when Properly Administered and Given in Progressively Increasing Doses. <i>John Ritter, M. D., Chicago</i>	94
Some Interesting Laboratory Investigations in Tuberculosis. <i>H. J. Corper, M. D., Chicago</i>	81	Chemotherapy in Tuberculosis. <i>M. W. Harrison, M. D., Collinsville, Ill.</i>	99
The Clinical Application of These Problems. <i>W. A. Gekler, M. D., Chicago</i>	86	Pregnancy in the Tuberculous. <i>Edward M. Heacock, M. D., Chicago</i>	100
The Influence of Mixed and Secondary Infection Upon Pulmonary Tuberculosis in Man. <i>R. T. Pettit, M. D., Ottawa, Ill.</i>	88	A Few Remarks Concerning the Diagnosis of Early Pulmonary Tuberculosis. <i>Geo. Halperin, M. D., Chicago</i>	103
Tuberculin Therapy. <i>Lawrence J. Quillin, M. D., Streator, Ill.</i>	91		

(Continued on page 46)

(Continued on page 46)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

JUST ISSUED

Moorhead's Traumatic Surgery

This work has a wide appeal. It appeals to the surgeon, the practitioner, the mining, railroad, and industrial physician, those having to do with Compensation Law, accident insurance and claims, and legal medicine. But its greatest appeal is to the *general practitioner*—the man in general practice anywhere—because practically the entire work is devoted to *Minor Surgery*—those traumatic conditions that form a part of every doctor's daily practice. The work is original in text, illustrations, arrangement, and method of presentation. Only those treatments are given which Dr. Moorhead has found successful.

The topics are discussed in the order of frequency of occurrence, giving a special chapter to *traumatic hysteria and neurasthenia* ("Traumasthenia"). Throughout the work two cardinal principles of traumatic surgery are emphasized—*disinfection* and *conservation*. The open air and sunlight treatment, being used with such success in the great war in Europe, is definitely detailed, not at second hand, but from the personal experience of Dr. Moorhead after many years' use of it. The *522 illustrations* were made under Dr. Moorhead's personal and constant supervision, and each one really illustrates the point under discussion.

Octavo of 760 pages, with 522 line drawings. By JOHN J. MOORHEAD, M.D., Adjunct Professor of Surgery, New York Post-Graduate Medical School and Hospital. Cloth, \$6.50 net; Half Morocco, \$8.00 net.

W. B. SAUNDERS COMPANY Philadelphia and London

This Issue, 6,550 Copies

Horlick's the Original Malted Milk

RELIABLE - - DEPENDABLE

*A Meritorious Product with a Record of over a third
of a century of Uniform Quality*

*See that your patients get Horlick's
and avoid substitution*

Horlick's Malted Milk Company

Racine, Wisconsin

CLINICAL LABORATORY ANALYSES

For your own reputation and the health
of your patients **Absolute Accuracy** in
laboratory analyses are prerequisites.

Quick Service must accompany such work.

**We Have Built Our Reputation and a Big Business on These
Ask Your Fellow Practitioners**

Accurate analyses of all secretions, excretions and body fluids

Wassermann Test-Tissue Diagnoses-Autogenous Vaccines

**LABORATORY OF
PATHOLOGY AND BACTERIOLOGY**

Dr. Maximilian Herzog

Dr. Meyer D. Moledetzky

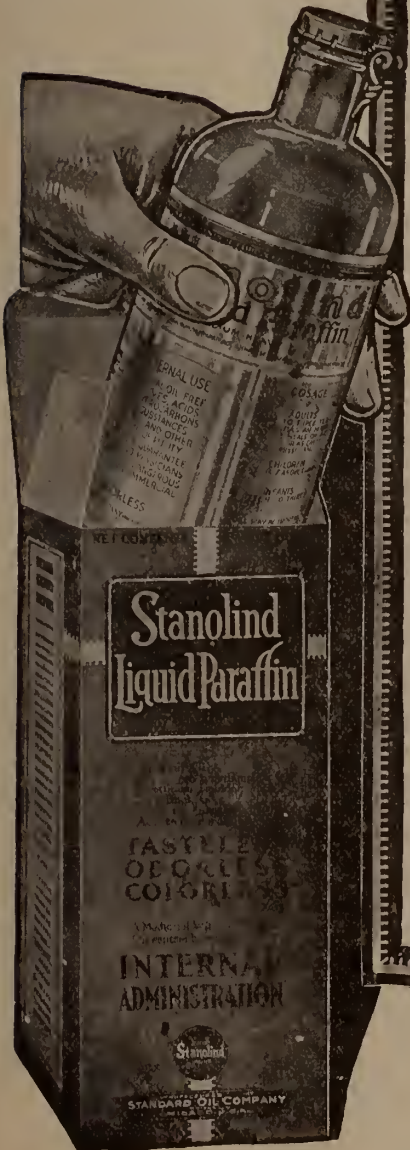
Suite 1604-5 The Mallers Building

5 South Wabash Avenue

CHICAGO

Phones Randolph 5794-5795

Stanolind
Trade Mark Reg. U. S. Pat. Off.
Liquid Paraffin
(Medium Heavy)
Tasteless—Odorless—Colorless



Before Operation

Stanolind Liquid Paraffin is an ideal laxative for surgical practice.

When used in the proper dose, it thoroughly empties the alimentary canal, without producing irritation or other undesirable effects.

It is particularly valuable in intestinal surgery, because it leaves the stomach and bowels in a quiet state, and because its use is not followed by an increased tendency to constipation.

After an abdominal operation, one or two ounces of Stanolind Liquid Paraffin may be given through a tube while the patient is still under the anaesthetic, or as an emulsion, an hour or two later.

Stanolind Liquid Paraffin is essentially *bland* in its action, causing a minimum amount of irritation while in stomach or intestine. It may also in most cases be gradually reduced without apparently affecting the frequency of the evacuations.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company

(Indiana)

72 W. Adams St.
Chicago, U. S. A.

Sugar is an Extremely Important Constituent in Infant Feeding BUT

YOU MUST SELECT THE RIGHT SUGAR

A large part of the troubles of infant feeding has been shown to be due to the ingestion of milk sugar or cane sugar.

MEAD'S DEXTRI-MALTOSE

from the standpoint of DIGESTIBILITY and ASSIMILABILITY represents the properly balanced carbohydrate. Composition—Maltose 52%, Dextrin 41.7%, Sodium Chloride 2%.

Administration—1½ oz. Dextri-Maltose (2 heaping tablespoonfuls) to any milk and water mixtures suited to age and weight.

Literature and Samples on Request

Mead Johnson & Co.

Evansville, Ind.

There are many grades of crude drugs
offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch
Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY

Sherman's Bacterial Vaccines Preparations with a Record for Reliability

All the vaccines usually employed in the treatment of infectious diseases marketed in specially devised aseptic antiseptic bulk packages, insuring absolute safety in withdrawing contents.

5 c.c. for \$1.00 18 c.c. for \$3.00 Ampules, 6 in box, \$1.50

Daily Users of Vaccines use Sherman's

SHERMAN'S NEW BOOK

JUST OFF THE PRESS

Devoted to the Application of
BACTERIAL VACCINES

Explaining their therapeutic action—How, When and Where to use them.

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for \$2.50.

WRITE FOR LITERATURE

G. H. SHERMAN, M. D.

3334 Jefferson Ave. E.

Detroit, Mich.



Bran Diet

**Varied and Likable
Extra Efficient**

Pettijohn's Breakfast Food—soft rolled wheat—is to all folks a luxury dish.

Pettijohn's Flour is far better than Graham, as it can be used in as many ways.

Both now contain 25 per cent of bran flakes. So they supply bran in plenty. They supply it in flake form. And they hide it in numerous tempting foods of which people never tire.

You will find that they meet your ideal of a bran food for continuous effect.

Pettijohn's

Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company

Chicago

(1511)

Antituberculous
FORMULA:

FIROLYPTOL with KREOSOTE

Antistrumous
Firwein, Eucalyptol

Cotton Seed Oil Morson's White Label Kreosote

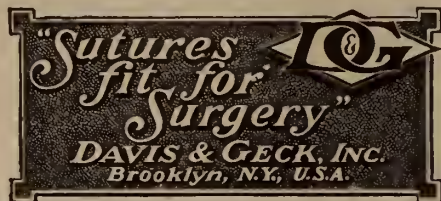
Free Samples to the Profession

THE TILDEN COMPANY

Manufacturing Pharmacists and Chemists
NEW LEBANON, N. Y. Since 1848

ST. LOUIS, MO.

THE Pennoyer
Established 1887
Kenosha, Wis., between Chicago and Milwaukee on the North-Western R. R. Finest Health Resort and Sanitarium on Lake Michigan. Beautiful environment—a mile of lake shore. For illustrated prospectus address N. A. Pennoyer, M. D.



DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. Mfrs. of Fine Pharmaceuticals and Hypodermic Tablets
215-217-219 W. Ohio St. CHICAGO Telephone North 1704

Mellin's Food is of much assistance in adjusting the diet to correct constipation of infants.

Details of the method of procedure to meet such conditions will be sent to physicians, upon request.

Mellin's Food Company
Boston, Mass.

CHLORAZENE

Dakin's New Antiseptic

This remarkable, chlorine-carrying antiseptic (para-toluene-sodium-sulphochloramide) is one of the great medical discoveries coming out of the European war. It was developed in the French Military hospitals by Dr. H. D. Dakin, of the Rockefeller Institute, with the clinical co-operation of Dr. Alexis Carrel.

Chlorazene is distinctly superior to the hypochlorites, because as Doctor Dakin says (and Dakin himself devised the hypochlorite solution popularized by Carrel), it is more stable, less irritating, and can be used in greater concentration.

Chlorazene is many times as powerful as phenol, yet it is virtually nontoxic and noncaustic. It is supplied both in tablet and powder form and may be kept for weeks and months ready for use at any time.

Chlorazene is being used by the Carrel method for treating infected wounds, and in surgical and general hospital work it is meeting with great favor.

Many physicians report extremely gratifying results in the use of **Chlorazene** for

Infections
Lacerated Wounds
Ulcers
Carbuncles
Eczema

Nasal and Throat Troubles
Intrauterine Irrigation
Following Labor
Douching and Urethral
Irrigation

Chancroids
Gonorrhea
Burns
Surgical Work
Pyorrhea

and in other conditions requiring antiseptic treatment.

You will be surprised at the remarkably fine results which can be obtained with **Chlorazene**. Try it for yourself. If your druggist is not supplied send your order direct to our home office or branches.

Packages and Prices

CHLORAZENE is supplied in 4.6-grain tablets, in bottles of 100, at 60c. In powder, two special packages for general and hospital use: Hospital Package No. 1, to make 1 gallon of 1-percent solution, 55c; Hospital Package No. 2, to make 5 gallons of 1-percent solution, \$2.00. Chlorazene Surgical Cream, per 4-ounce jar, 60c. Prices on larger quantities on request.

Literature on request.

THE ABBOTT LABORATORIES

CHICAGO - NEW YORK

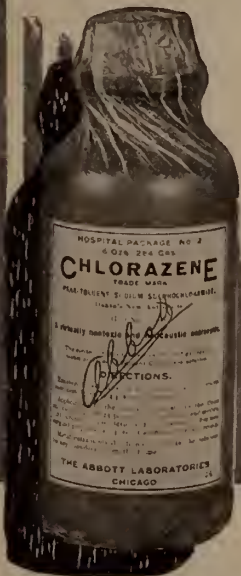
Seattle

San Francisco

Los Angeles

Toronto

Bombay



MANY A SUCCESSFUL PHYSICIAN

has learned from practical experience to
appreciate the therapeutic efficiency of

Gray's Glycerine Tonic Comp.

FORMULA DR. JOHN P. GRAY

Its prompt effect on the appetite, digestion
and nutrition can be confidently relied upon.

If you are not personally familiar with the remarkable
tonic properties of "Gray's" write for
special six-ounce sample.

CONSTITUENTS

Glycerine
Sherry Wine
Gentian
Taraxacum
Phosphoric Acid
Carminatives

DOSAGE—ADULTS: Two to four teaspoon-
fuls in a little water before meals three or
four times daily.

CHILDREN—One-half to one teaspoonful in
water before meals.

INDICATIONS

Auto-Intoxication
Atonic Indigestion
Anemia
Catarrhal Conditions
Malnutrition
Nervous Ailments
General Debility

THE PURDUE FREDERICK CO., 135 CHRISTOPHER STREET, NEW YORK.

RECEIVED BY

SUBMARINE

"DEUTSCHLAND"

ADALIN (Sedative and Hypnotic) 5 gr. tablets,
bottles of 25

SAJODIN (Improved Iodin Medication) 8 gr. tablets,
tubes of 20

In spite of very high submarine freight and insurance and increased duty,
the prices of these products have been advanced only 15c per package

WE CAN AGAIN SUPPLY

SALOPHEN

Powder in ounces and 5 gr. tablets

TANNIGEN

Powder in ounces

LITERATURE ON REQUEST

THE BAYER COMPANY, Inc., 117 HUDSON STREET, NEW YORK, N. Y.

Chicago Pasteur Institute

26th YEAR

812 NORTH DEARBORN STREET

CHICAGO

FOR THE PREVENTIVE TREATMENT OF HYDROPHOBIA

ANTONIO LAGORIO, M.D. LL.D., Medical Director

G. B. BRUNO, M.D., Associate Director

FRANK A. LAGORIO, M.D., Associate Director

Announcement—When patients are unable to come to
Institute, we can furnish physicians
our course of Pasteur treatment by mail, in the State of Illinois.
Telephone Superior 973.

N. B.—We have no branches and the use of our name is unauthorized.

READER! are you buying your supplies from our advertisers?
Our advertising pages are your property as a
member of the Illinois State Medical Society

Advertisers will pay for space in proportion as you buy from them,
and thus make the space valuable to them.

Order now, and write that you saw the "ad" in the JOURNAL.

Swan's Rheumatic Bacterin

MADE from a number of strains of Streptococcus
obtained by blood cultures from cases of acute
and chronic Arthritis.

The most specific treatment for arthritic condi-
tions known to modern medicine.

In 20 c. c. (Mil.)

Rubber

Stoppered Vials

\$3.00

Literature and complete directions
with each stock package.

SWAN-MYERS COMPANY

Pharmaceutical and Biological Laboratories

INDIANAPOLIS, IND., U. S. A.

"An Ounce of Prevention Is Worth a Pound of Cure"

Immunize your patients against Influenza and "Colds" NOW and do not wait until respiratory affections are prevalent.

Influenza Serobacterin Mixed Mulford will give immunity from attacks of "Colds" and influenza



to a large percentage of patients suffering with periodic attacks of disease of the respiratory passages caused by the organisms used in preparing the serobacterin.

Supplied in packages containing four aseptic glass syringes.

Syringes contain killed sensitized bacteria as follows:

	Syringe A	Syringe B	Syringe C	Syringe D
B. influenzae	125	250	500	1000 million
Staphylococcus albus	125	250	500	1000 million
Staphylococcus aureus	125	250	500	1000 million
Streptococcus	125	250	500	1000 million
Pneumococcus	125	250	500	1000 million
M. catarrhalis (group)	125	250	500	1000 million

Literature describing method of treatment and dosage, together with special educational bulletins for distribution to your patients, sent on request.



H. K. MULFORD COMPANY

Manufacturing and Biological Chemists

HOME OFFICE AND LABORATORIES

PHILADELPHIA, U. S. A.

21995



OIL OF THUJA COMPOUND

(N. B. & CO.)

Active Constituents: Oil of Thuja, Oil of Cajuput, Oil Sesame, Oil Persica

Oil of Thuja has obtained considerable reputation as an absorbent of adenoid or lymphoid tissue, and in the treatment of hypertrophies of the mucous membrane of the nasal cavity and nasopharynx, especially in children.

Oil of Thuja Compound N. B. & CO. combines oil of Thuja with other oils having a similar therapeutic action, the preparation being non-irritant and non-toxic and designed to be applied directly to the parts affected by means of a nasal or post-nasal spray or, in the case of young children, by dropping it into the nostrils while the patient is sleeping or in a reclining position. Literature furnished to physicians upon request.

NELSON, BAKER & CO. Detroit Mich., Kansas City, Mo.

AREND-ADAMICK DOUBLE KUMYSS

AN IDEAL FOOD for all conditions of enfeebled digestive power from any cause, malnutrition in infants or the aged—a sustaining diet during the course of acute infectious diseases and gastro-intestinal disorders
EASILY ASSIMILATED and contains the elements essential for the nourishment of the organism.
A VALUABLE NUTRIENT in Typhoid, Enteritis, Marasmus, Acute fevers, Gastric Ulcer, Anemia, Vomiting of Pregnancy, Asthenic fevers and during Convalescence.

Its taste is pleasantly acidulous—its enticing flavor is unusually acceptable to the capricious appetite of the sick—it may be used for days as an exclusive diet.

Booklet giving instructions and interesting clinical report, also price list, free on request.

A. AREND DRUG COMPANY

Manufacturing Chemists

182 West Madison Street, Chicago

No Matter How High The Standard—

unless it be backed-up by a steady continuity of efficiency, the end-result will be mediocrity.

The phrase "Quality Products" would be empty patter were it not backed-up by that honesty of purpose and ceaseless study to improve which constitute "the bone and gristle" of our 57 years' record as tried-and-not-found-wanting purveyors to the medical profession—a continuous output of distinctly worth-while products of unquestioned quality.

Sharp & Dohme

Since 1860

"Quality Products"

SOLD BY THE MOST DISCRIMINATING DRUGGISTS EVERYWHERE.

Rejuvenation of Creosote

VALUE OF CREOSOTE

Shoemaker (Materia Medica and Therapeutics, page 409), says: "In the treatment of tuberculosis Creosote is, according to Jacobi, the most valuable drug which we possess."

Potter (Materia Medica and Therapeutics, page 253), says: "In pulmonary tuberculosis, when well borne by the stomach and continued over a long period of time, it has probably proved more efficient than any other remedy."

OBJECTIONS TO CREOSOTE

The objections to creosote have been so great as to prevent its employment to considerable extent. Its administration, as one writer states, has been hampered by the acrid taste and by the nausea and vomiting too readily introduced in many with any other than small doses.

OBJECTIONS OVERCOME

When creosote is chemically combined with calcium, as in Calcreose, the objections are very largely overcome and it is found that large doses may be given over a long period of time without difficulty.

FORMULA OF CALCREOSE

In the process of manufacture 50 pounds of U. S. P. beechwood creosote is used in making 100 pounds of Calcreose.

Calcreose Powder Per Pound, \$3.00
Prepared by adding to one gallon of water.

Calcreose Tablets, coated brown; representing 4 grs.
100, 35c; 500, \$1.55; 1,000, \$3.00

Calcreose No. 2 Tablets, coated yellow; Calcreose, 4 grs.; Iron, reduced, ½ gr.; Arsenic Trioxide, 1-150 gr.; Strychnine, 1-150 gr. 100, 40c; 500, \$1.70; 1,000, \$3.25

The value of creosote has long been known. Many authorities might be quoted, but the following will suffice:

The objections to creosote have been so great as to prevent its employment to considerable extent. Its administration, as

one writer states, has been hampered by the acrid taste and by the nausea and vomiting too readily introduced in many with any other than small doses.

When creosote is chemically combined with calcium, as in Calcreose, the objections are very largely overcome and it is found that large doses may be given over a long period of time without difficulty.

Calcreose is a reddish-brown granular powder, which contains fifty per cent creosote chemically combined with calcium.

THERAPEUTICS OF CALCREOSE

We have issued a booklet under the title: "Therapeutics of Calcreose," which we are pleased to mail to physicians upon request. In this booklet we quote authorities upon the value of both creosote and calcium and the advantages of a combination of the two. We also include reprints of articles published by physicians in well known medical journals in which successful results from the use of Calcreose are reported. These reports refer particularly to its use in tuberculosis.

SPECIAL OFFER TO PHYSICIANS

Since it is usually necessary to give Calcreose in large doses over a long period of time, especially in tuberculosis, samples are insufficient to test it thoroughly. While we supply samples, *we urge physicians to order sufficient Calcreose to give it a thorough test.*

In order that physicians may do this without risk we will send it **ON APPROVAL**. If results are satisfactory you will be glad to pay for it; if not satisfactory, we will not let you pay for it.

Thousands of physicians have ordered Calcreose on approval and are glad they did, for they have found they could safely administer large doses, and in consequence, they have been getting splendid results—especially in throat and lung diseases.

Your greatest ambition is to cure your patients. You may be skeptical regarding the value of Calcreose, but you will admit we offer some very strong evidence. Can you afford, under the circumstances, **NOT** to give Calcreose a trial?

Needless to say, if we did not think the trial would result favorably, and that you would continue to prescribe Calcreose, we would not make the offer.

ORDER HERE

THE MALTBIÉ CHEMICAL CO.,
Newark, N. J.

I. M. J. 117

Please send me your booklet "Therapeutics of Calcreose," **FREE**. Also send prepaid and on approval (draw pen through items not wanted.)

1 Lb. Calcreose Powder \$3.00
500 Calcreose Tablets 1.55
200 Calcreose No. 2 Tablets80
1000 Drysdale's Aperient Tablets 1.25

I will remit in 60 days for all I find satisfactory. Nothing to be returned, nothing to be paid, if results are not satisfactory.

Name M. D.

Address

Drysdale Aperient Tablets

Formula: Rhubarb 1¼ gr., aloes 1¼ gr., ipecac 5/12 gr., nux vomica ½ gr.

The demand for laxatives is universal. NEW products are constantly appearing, yet it is doubtful if many are equal to the OLD Drysdale formula which we redeemed a few years ago.

The Editor of The Medical World, said of this formula: "No Cathartic will cure constipation. But this tonic laxative will come as near to it as anything the Editor has ever discovered. A cathartic leaves the musculature of the intestine debilitated and the patient is worse than previous to ingesting the cathartic; this formula is not in any sense a cathartic, and tones up the intestine so that the patient is practically better after taking it, even through long periods."

THE MALTBIÉ CHEMICAL CO. NEWARK, N. J.

Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

Main College Building and Willard Hospital

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant. The Faculty consists of men who have distinguished themselves as medical educators. The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction. The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

**A Post-Graduate School for Prac-
titioners of Medicine**

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

Home Training In Nursing



We offer a thorough extension course to beginners and also to practical nurses wishing to perfect themselves in the theory and science of nursing.

There is in every community a demand for competent nurses — women physically qualified and possessing natural ability, who for various reasons cannot leave home to get their training. Through the aid of the very thorough system of instruction used by this school for a period of sixteen years, we have trained hundreds of women who have "made good" as practical nurses. In fact our graduates adapt themselves to the inconveniences of private nursing more readily than the hospital-trained nurse. They are loyal to the home doctor, whose co-operation has made their success possible.

Reputable physicians are invited to investigate our methods and co-operate with us by sending the names of earnest women who in their estimation would make desirable applicants. Tuition fees very reasonable—small payment plan. Write for the Sixteenth Annual Announcement. Address

**Karen Esmann, Registrar
CHICAGO SCHOOL OF NURSING
116 S. Michigan Blvd., Chicago, Ill.**



The Key to a Smooth-Running Motor Is Polarine

Polarine minimizes friction—friction minimized means repairs minimized and increased power as well, and—

Polarine

FRICION REDUCING MOTOR OIL

flows as freely at zero as at 100 degrees. It maintains the correct lubricating body at any motor speed or temperature. Yet Polarine costs no more than inferior lubricating oil. Order a half barrel today and cut down your up-keep.

Standard Oil Company (Indiana) Chicago, U. S. A.

Use Red Crown Gasoline and get more power, more speed, more miles per gallon

22b



INDEX TO ADVERTISERS

Abbott Laboratories.....	7
A. Arend Drug Co.....	41
Bayer Company.....	8
Bellevue Sanitarium	36
Beverly Farm School.....	38
Chicago College of Medicine and Surgery.....	43
Chicago Eye, Nose & Throat College.....	43
Chicago Fresh Air Hospital.....	34
Chicago Laboratory	50
Chicago Maternity Hospital	43
Chicago Pasteur Institute	9
Chicago School of Nursing.....	43
Cincinnati Sanitarium	38
College of Medicine, Univ. of Ill.....	29
Cocroft, Susanna	2
Columbus Medical Laboratory.....	12
Crittenton, Chas. N., Co.....	48
Danville Radium Institute.....	17
Edward Sanatorium	35
Fletcher's Sanatorium	37
Gradwohl Biological Laboratories.....	12
Harvey, G. F.....	33
Horlick's Malted Milk Co.....	2
Hygeia Hospital	36
Illinois Nurses Registry.....	40
Kenilworth Sanitarium	36
Laboratory of Pathology and Bacteriology.....	2
Lambert Pharmaceutical Company.....	13
Lederle Antitoxin Laboratory.....	49
Maltbie Chemical Company.....	42
Medical Protective Co.....	11
Mead, Johnson & Co.....	4
Mellier Drug Co.....	13
Mellin's Food Co.....	6
Milwaukee Sanitarium.....	37

Mueller & Co., V.....	40
Mulford, H. K., & Co.....	10
Murphey Sanatorium.....	33
Nelson, Baker & Co.....	41
Norbury Sanitarium.....	35
Oconomowoc Health Resort.....	35
Ottawa Tuberculosis Colony.....	34
Parke, Davis & Co.....	18
Pennoyer Sanitarium	6
Peoria Mud Baths.....	38
Peoria Sanatorium	39
Petty & Wallace's Sanitarium.....	39
Phillips Co., Chas. H.....	46
Physicians' Radium Association.....	15
Pine Sanatorium	43
Pitman-Moore Co.....	4
Pottenger Sanatorium	34
Power-Wall Co.....	19
Purdue, Frederick, Co.....	8
Pure Gluten Food Co.....	5
Quaker Oats Co.....	5, 47
Radium Institute	50
Ransom Sanitarium	37
Saunders Co., W. B.....	front cover
Searle & Co., G. D.....	6
Sharp & Dohme	41
Sherman, G. H., M. D.....	5
Standard Oil Co.....	3, 44
Storm, Katherine L., M. D.....	11
Sulphur Springs Sanitarium.....	23
Swan-Myers Co.....	9
Thompson's Malted Food Company.....	13
Tilden Co., The.....	6
Waukesha Moor (Mud) Bath Co.....	38
Waukesha Springs Sanitarium.....	36
Weirick's Sanitarium	39
Wood, Dr. Frank M.....	11
Wander, Dr. A.....	16

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.....	11
--------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.....	3, 44
----------------------	-------

FOOD

Arend-Adamick Koumyss	41
Horlick's Malted Milk Co.....	2
Mead, Johnson & Co.....	6
Mellin's Food Co.....	6
Pure Gluten Food Co.....	5
Quaker Oats	5, 47
Thompson's Malted Food Company.....	13
Wander's Ovaltine	16

HOSPITAL

Chicago Fresh Air Hospital.....	34
Chicago Maternity Hospital.....	43
Hygeia Hospital	36

INVESTMENTS AND INSURANCE

Medical Protective Co.....	11
Power-Wall Co.....	19

LABORATORY

Abbott Laboratories	7
Chicago Laboratory	50
Columbus Medical Laboratory.....	12
Gradwohl Biological Laboratories.....	12
Laboratory of Pathology and Bacteriology.....	2
Swan-Myers Co.....	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.....	front cover
-------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery.....	43
Chicago Eye, Ear, Nose and Throat College.....	43
College of Medicine, Univ. of Ill.....	29

MUD BATHS

Peoria Mud Baths.....	38
Waukesha Moor (Mud) Bath Co.....	38

NURSES

Chicago School of Nursing.....	43
Illinois Nurses Registry	40

PHARMACEUTICALS

Abbott Laboratories	7
Bayer Company.....	8
Crittenton, Chas. N., Co.....	48
Harvey, G. F.....	33
Kenilworth Sanitarium	22
Lederle Antitoxin Laboratory	49
Lambert Pharmacal Company.....	13
Maltbie Chemical Company.....	42
Mead, Johnson & Co.....	4
Mellier Drug Co.....	13
Mulford, H. K., & Co.....	10
Nelson, Baker & Co.....	41
Parke, Davis & Co.....	18
Phillips Co., Chas. H.....	46
Pitman-Moore Co.....	4
Purdue, Frederick, Co.....	8
Sherman's Bacterins	5
Searle & Co., G. D.....	6
Sharp & Dohme	41
Swan-Myers Co.....	9
Tilden Co., The.....	6
Wood's Bacterins	11

SANATORIA & SANITARIA

Bellevue Sanitarium	36
Cincinnati Sanitarium	38
Danville Radium Institute.....	17
Edward Sanatorium	35
Fletcher's Sanatorium	37
Kenilworth Sanitarium	36
Norbury Sanitarium	35
Milwaukee Sanitarium	37
Murphey Sanatorium.....	33
Oconomowoc Health Resort	35
Ottawa Tuberculosis Colony.....	34
Pennoyer Sanitarium.....	6
Peoria Sanitarium	39
Petty & Wallace's Sanitarium.....	39
Pine Sanatorium	48
Pottenger Sanatorium	34
Radium Institute	50
Ransom Sanitarium	37
Riverside Sanitarium	39
Sulphur Springs Sanitarium.....	23
Waukesha Springs Sanitarium.....	36
Weirick's Sanitarium	39

SURGICAL INSTRUMENTS

Mueller & Co., V.....	40
-----------------------	----

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and Invalid feeding.

Phillips' Phospho-Muriate of Quinine

Compound

NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.

NEW YORK

LONDON

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

A Radical Cure of Osteomyelitis of the Ribs. Emil G. Beck, M. D., Chicago.....	107
Some Painful Affections of the Feet. John L. Porter, M. D., Chicago.....	110

EDITORIAL.

Change of Date—Annual Meeting.....	119
Notice—Membership	119
Health Insurance	119
Is Cancer Hereditary or Contagious?.....	120
New Amsterdam Casualty Company.....	121
Malpractice Claims	121
Symposium on the Medical Profession.....	122
8. Luther D. Bradley—Cartoonist.....	122
9. To Medical Women of Chicago—Program.....	122

CORRESPONDENCE.

Dr. Carpenter to Hon. John A. Richert.....	124
--	-----

PUBLIC HEALTH.

Poliomyelitis Conferences	125
T. B. Notes	127

SOCIETY PROCEEDINGS.

Cook County:	
Chicago Medical Society	128
Chicago Ophthalmological Society.....	130
Chicago Roentgen Society	131
Greene County	132
Jo Daviess County	132
Kankakee County	133
Madison County	133
Pike County.....	134
St. Clair County	134
Personals	134
News	135
Marriages	136
Deaths	136
New and Nonofficial Remedies.....	137
Book Notices	138

COUNTY SOCIETIES—Continued

Pope County
J. A. Fisher, Pres......**Brownsville**
L. S. Barger, Secy......**Golconda**

Pulaski County
J. F. Hagan, Pres......**Mound City**
W. R. Wesenberg, Secy......**Mound City**

Randolph County
Wm. R. McKenzie, Pres......**Chester**
John P. Grimes, Secy.-Treas......**Menard**

Richland County
A. T. Telford, Pres......**Olney**
E. H. Horner, Secy......**Olney**

Rock Island County
Geo. A. Wiggins, Pres......**Milan**
A. E. Williams, Secy......**Rock Island**

St. Clair County
J. H. Fulgham, Pres......**E. St. Louis**
A. E. Hansing, Secy......**Belleville**

Saline County
M. D. Impson, Pres......**Brushy**
E. W. Cummins, Secy......**Harrisburg**

Sangamon County
Arthur E. Prince, Pres......**Springfield**
H. B. Henkel, Secy......**Springfield**

Schuyler County
A. W. Ball, Pres......**Rushville**
J. C. Steiner, Secy......**Rushville**

Scott County
J. W. Eckman, Pres......**Winchester**
H. H. Fletcher, Secy......**Winchester**

Shelby County
F. A. Martin, Pres......**Tower Hill**
Frank P. Auld, Secy......**Shelbyville**

Stark County
James R. Holgate, Pres......**Wyoming**
Clyde Berfield, Secy......**Toulon**

Stephenson County
W. B. Peck, Pres......**Freeport**
N. C. Phillips, Secy......**Freeport**

Tazewell County
H. L. Yoder, Pres......**Morton**
F. C. Gale, Secy......**Pekin**

Union County
S. G. Martin, Pres......**Anna**
E. V. Hale, Secy......**Anna**

Vermilion County
J. B. Morton, Pres......**Ridge Farm**
Solomon Jones, Secy......**Danville**

Wabash County
P. G. Manley, Pres......**Mt. Carmel**
A. A. Aukenbrandt, Secy......**Mt. Carmel**

Warren County
Philo B. Conant, Pres......**Roseville**
H. M. Camp, Secy......**Monmouth**

Washington County
R. Jack, Pres......**Okawville**
H. Schmidt, Secy......**Addieville**

Wayne County
T. J. Hilliard, Pres......**Fairfield**
Ostella F. Blakely, Secy......**Fairfield**

White County
C. B. Staley, Pres......**Enfield**
John Nless, Secy......**Carmi**

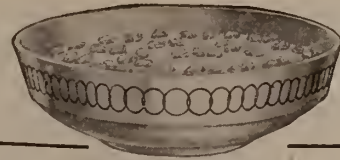
Whiteside County
W. H. Durkee, Pres......**Fulton**
H. N. Schmaling, Secy......**Fulton**

Will County
A. L. Schreffler, Pres......**Joliet**
Marlon K. Bowles, Secy......**Joliet**

Williamson County
J. G. Parmley, Pres......**Marion**
H. A. Felts, Secy......**Marion**

Winnebago County
Wm. E. Park, Pres......**Rockford**
C. M. Ranseen, Secy.-Treas......**Rockford**

Woodford County
W. C. Cotton, Pres......**Benson**
H. N. Barth, Secy......**Metamora**



Prof. Anderson's Steam-Exploded Grains

In this famous process we take whole grains of wheat or rice and seal them in huge guns.

For an hour we apply 550 degrees of heat. That turns the moisture in each food cell into steam.

The guns are shot, and the steam explodes. Inside each kernel there occur over 100 million explosions.

The grains are puffed to bubbles, eight times normal size. They are four times as porous as bread. Digestion is made easy and complete. And the 16 elements in a whole grain are perfectly fitted to feed.

They are served like other cereals. Also in bowls of milk. Also salted or buttered, as between-meal tidbits. No other method supplies whole-grain food in this ideal form.

The Quaker Oats Company

Sole Makers—Chicago

(1490)

**Puffed
Wheat**

**Puffed
Rice**

and Corn Puffs

Each 15c Except in Far West

Hydroleine ←

**An ethical emulsion of
cod-liver oil without
medicinal admixture.**

The manner in which the purest and freshest cod-liver oil is emulsified in Hydroleine, makes it easily digestible. Furthermore, Hydroleine does not offend the taste. Its nutty and distinctive flavor is liked by the most delicate palate, and children take it willingly.

In practice it is markedly utilizable, and is reliably stable. It is effective as a food-fat and possesses superior characteristics.

**In Long-continued Professional
Use Hydroleine Has Proved
Its Dependability**

THE CHARLES N. CRITTENTON CO.
115 Fulton Street, New York

Sold by druggists

Sample sent to physicians on request.

WANTED, FOR SALE, AND RENT DEPARTMENT

Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

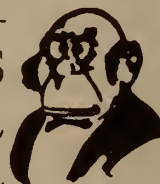
FOR SALE—24 in. Meyer Coil, cost about \$850, tube stand \$75, operator's lead protecting shield \$35, red light \$7.50, developing pans \$7.50, two tubes \$65. All in good working order. If taken at once, \$350. Address S. J. F., Illinois Medical Journal.

DRUG AND LIQUOR HABITS—SANITARIUM established eighteen years. No suffering, no danger, close medical care, good nursing. Pleasant surroundings, quick and absolutely satisfactory results. Ralph Sanitarium, 529 Highland Avenue, Kansas City, Mo.

**I AM SORRY I
did NOT advertise**

—in the—

**ILLINOIS
MEDICAL
JOURNAL**



Resident Physician

James H. Appleman, M. D.
CONSULTING STAFF

Surgeon

Gustav M. Blech, M. D.
104 South Michigan Ave.

Genito-Urinary

Frank Wieland, M. D.
122 South Michigan Ave.

Internist

Walter B. Metcalf, M. D.
25 East Washington St.

Electro-Therapy

Emil H. Grubbe, M. D.
130 North State Street

Throat, Nose and Ear

Richard H. Street, M. D.
25 East Washington St.

Pathologist

W. Henry Wilson, M. D.
3129 Rhodes Ave.

Oculist

Carleton A. Harkness, M. D.
29 East Madison St.

Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. No Suffering. Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
Local and Long Distance Telephone, Calumet 4543

THE SERUM TREATMENT OF SCARLET FEVER

The treatment of Scarlet Fever by injection of ANTISTREPTOCOCCUS SERUM has been carried out and endorsed by such recognized authorities as Escherick, von Pirquet, Schick, Baginsky, Moser and Axenow.

The serum is used to combat the secondary infection, due to the streptococcus, which in the majority of cases causes the complications and death. The patients most likely to improve under serum therapy are those who become severely ill after the appearance of the eruption.

ANTISTREPTOCOCCUS SERUM—LEDERLE is obtained from horses which have been hyperimmunized against many strains of streptococci isolated from cases of Scarlet Fever. Our serum is supplied in 50 c. c. bulb syringes, thus facilitating administration of the initial doses of 100 c. c. for infants and 200 c. c. for adults which are recommended by the New York City Department of Health.

Best results follow when the serum is given not later than the third or fourth day; the injections preferably being given intravenously. According to Axenow, KIDNEY COMPLICATIONS ARE RARE IN THOSE GIVEN THE SERUM TREATMENT.

VACCINATION against Scarlet Fever is now successfully carried out by Streptococcus Vaccines, more than 50,000 cases being on record in which the vaccines have been used. SCARLET FEVER PROPHYLACTIC—LEDERLE is supplied in vial or syringe packages containing one complete immunization, and in vial packages containing ten complete prophylactic treatments.

LEDERLE ANTITOXIN LABORATORIES

Schieffelin & Co., Distributors

NEW YORK

THE RADIUM INSTITUTE

1604 Mallery Building, 59 East Madison Street
Corner Wabash Avenue, Telephone Randolph 5794

CHICAGO

DR. FRANK E. SIMPSON, *Director*

*Treatment of Malignant and Benign Growths with
Radium. Post-Operative Prophylactic Radiations. Appli-
cators for all purposes, including many of Special Designs.*

COUNCIL: DR. F. A. BESLEY, DR. E. C. DUDLEY, DR. A. R. EDWARDS,
DR. O. T. FREER, DR. M. HERZOG, DR. L. E. SCHMIDT, DR. G. F. SUKER.



CHICAGO LABORATORY

CLINICAL—ANALYTICAL

Marshall Field Annex Building, 25 E. Washington St., CHICAGO

Established 1904 Phone Randolph 3610

WASSERMANN TEST

Controlled by the Noguchi System

SPINAL FLUIDS

COMPLEMENT FIXATION for GONORRHEA

COMPLEMENT FIXATION for TUBERCULOSIS

All other Laboratory Tests

Send for Booklet of Instructions

Prompt reports by mail, telephone and telegraph

Our names and reputations stand back of our work.

RALPH H. WEBSTER, M. D., Ph. D.

Director of Chemical Department

THOMAS L. DAGG, M. D.

Director of Pathological Department

C. CHURCHILL CROY, M. D.

Director of Bacteriological Department



Mention ILLINOIS MEDICAL JOURNAL when writing to advertisers.

Illinois Medical Journal



OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 3

CHICAGO, MARCH, 1917

\$2.00 a Year

CONTENTS

ORIGINAL ARTICLES		PAGE		PAGE
The Bio-Chemistry of Topical Applications with Special Reference to the Use of Boric Acid in Septic Infections. <i>Edward H. Ochsner, M. D., Chicago</i>		139	The Treatment of Specific Diseases by Non-Specific Foreign Protein. <i>Frank B. Lusk, M. D., Chicago</i>	162
Removal of the Gallbladder. <i>E. Starr Judd, M. D., Rochester, Minn.</i>		144	Modern Aspect of the Cancer Problem. <i>G. Kolischer, M. D., Chicago</i>	163
On the Etiologic Relationship Existing Between Gastric Ulcer and Gastric Cancer. <i>Frank Smithies, M. D., Chicago</i>		149	Adiposis Dolorosa (Dercum's Diseases.) <i>A. C. Wittman, M. D., Peoria, Ill.</i>	165
Surgical Complications of Pregnancy. <i>W. C. Danforth, M. D., Evanston, Ill.</i>		156	Amebic Dysentery. <i>John W. McGuire, M. D., Chicago</i>	163
Medical Complications of Pregnancy. <i>R. M. Scott, M. D., Evanston, Ill.</i>		159	Hemorrhoids, Their Cause and Treatment. <i>Franklin A. Turner, M. D., Rockford, Ill.</i>	174
			Our Secretary. <i>D. W. Miller, M. D., Gilman, Ill.</i>	177
			Some Forms of Insanity Most Frequently Met by Physicians. <i>C. H. Anderson, M. D., McLeansboro, Ill.</i>	178

(Continued on page 32)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

JUST ISSUED—NEW WORKS

Sollmann's Pharmacology

The Manual

This is the text or reference volume. In it two sizes of type are used: The essentials, the broad conceptions, the generalizations, and those detailed discussions of clinical importance to the practitioner and the student alike, are set in the larger type; the great mass of minute details is set in the smaller type, with frequent side headings to facilitate consultation. The practical relation of pharmacology to the practice of medicine is emphasized, and those drugs that are *actually used* are given *extended consideration*. This is in line with the modern movement for the restriction of the "Materia Medica."

Octavo of 901 pages, illustrated. By TORALD SOLLMANN, M. D., Professor of Pharmacology and Materia Medica, Western Reserve University. Cloth, \$4.50 net.

The Laboratory Guide

The *exercises* detailed here present no difficulty in technic. Special stress is laid on facts with direct clinical bearing. The *experiments* on animals are arranged in groups, to illustrate various types or phenomena, to bring out the similarities and differences of the response of organs to pharmacologic agents, rather than by individual drugs. This arrangement articulates better with the subjects of physiology and pathology.

Octavo of 355 pages, illustrated. By TORALD SOLLMANN, M. D.

Cloth, \$2.50 net.

W. B. SAUNDERS COMPANY

Philadelphia and London

This Issue, 6,550 Copies

Horlick's the Original Malted Milk

RELIABLE - - DEPENDABLE

*A Meritorious Product with a Record of over a third
of a century of Uniform Quality*

*See that your patients get Horlick's
and avoid substitution*

Horlick's Malted Milk Company

Racine, Wisconsin

CLINICAL LABORATORY ANALYSES

For your own reputation and the health
of your patients **Absolute Accuracy** in
laboratory analyses are prerequisites.

Quick Service must accompany such work.

**We Have Built Our Reputation and a Big Business on These
Ask Your Fellow Practitioners**

Accurate analyses of all secretions, excretions and body fluids

Wassermann Test-Tissue Diagnoses-Autogenous Vaccines

**LABORATORY OF
PATHOLOGY AND BACTERIOLOGY**

Dr. Maximilian Herzog

Dr. Meyer D. Moledetzky

Suite 1604-5 The Mallers Building

5 South Wabash Avenue

CHICAGO

Phones Randolph 5794-5795

Stanolind

Trade Mark Reg. U. S. Pat. Off.

Liquid Paraffin

(Medium Heavy)

Tasteless — Odorless — Colorless

In Treating Hemorrhoids

STANOLIND Liquid Paraffin, used regularly, very generally relieves hemorrhoids and fissure, even when of some years' standing.

Since these morbid conditions are usually the result of constipation, and are aggravated by straining, Stanolind Liquid Paraffin aids by rendering the intestinal contents less adhesive, by allaying irritation and thus by permitting the diseased tissues to become healed.

Where a contraindication for operative treatment exists, the use of Stanolind Liquid Paraffin in these conditions will frequently give relief from distressing symptoms and may even permit the parts to be restored to a condition where operative procedure may be postponed.

The *special advantage* of Stanolind Liquid Paraffin lies in the fact that its beneficial effects are not diminished by continual use, as is the case with almost any other laxative.

Stanolind Liquid Paraffin acts by lubrication and by adding bulk to the indigestible intestinal residue.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company

(Indiana)

72 West Adams Street
Chicago, U. S. A.

75



Sugar is an Extremely Important Constituent in Infant Feeding BUT

YOU MUST SELECT THE RIGHT SUGAR

A large part of the troubles of infant feeding has been shown to be due to the ingestion of milk sugar or cane sugar.

MEAD'S DEXTRI-MALTOSE

from the standpoint of DIGESTIBILITY and ASSIMILABILITY represents the properly balanced carbohydrate. Composition—Maltose 52%, Dextrin 41.7%, Sodium Chloride 2%.

Administration—1½ oz. Dextri-Maltose (2 heaping tablespoonfuls) to any milk and water mixtures suited to age and weight.

Literature and Samples on Request

Mead Johnson & Co.

Evansville, Ind.

There are many grades of crude drugs
offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten

DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY



To Foster Bran Habits

You will find Pettijohn's, we think, the best way known to foster the bran habit.

The Breakfast Food is a wheat-flakedainty of which folks never tire.

The Flour is more likable than Graham, and is used in many ways.

Both hide 25 per cent of bran—a bran which isn't gritty. And, being in flake form, it is doubly efficient.

Thousands of physicians now advise these as the ideal form of bran diet.

Pettijohn's

Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company
Chicago (1512)

Sherman's Bacterial Vaccines

Preparations with a Record for Reliability

All the vaccines usually employed in the treatment of infectious diseases marketed in specially devised aseptic antiseptic bulk packages, insuring absolute safety in withdrawing contents.

5 c.c. for \$1.00 18 c.c. for \$3.00 Ampules, 6 in box, \$1.50

Daily Users of Vaccines use Sherman's

SHERMAN'S NEW BOOK

JUST OFF THE PRESS

Devoted to the Application of

BACTERIAL VACCINES

Explaining their therapeutic action—How, When and Where to use them.

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for \$2.50.

WRITE FOR LITERATURE

G. H. SHERMAN, M. D.

3334 Jefferson Ave. E.

Detroit, Mich.

Antituberculous FORMULA:	FIROLYPTOL with KREOSOTE	Antistrumous Firwein, Eucalyptol
Cotton Seed Oil	Morson's White Label Kreosote	
Free Samples to the Profession		
THE TILDEN COMPANY		
Manufacturing Pharmacists and Chemists		
NEW LEBANON, N. Y.	Since 1848	ST. LOUIS, MO.

THE Pennoyer
Established 1857
Kenosha, Wis., between Chicago and Milwaukee on the North-Western R. R. Finest Health Resort and Sanitarium on Lake Michigan. Beautiful environment—a mile of lake shore. For illustrated prospectus address N. A. Pennoyer, M. D.

"Sutures fit for Surgery"
DAVIS & GECK, INC.
Brooklyn, N.Y., U.S.A.

DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. *Mfrs. of* Fine Pharmaceuticals and Hypodermic Tablets
215-217-219 W. Ohio St. CHICAGO Telephone North 1704

Constipation

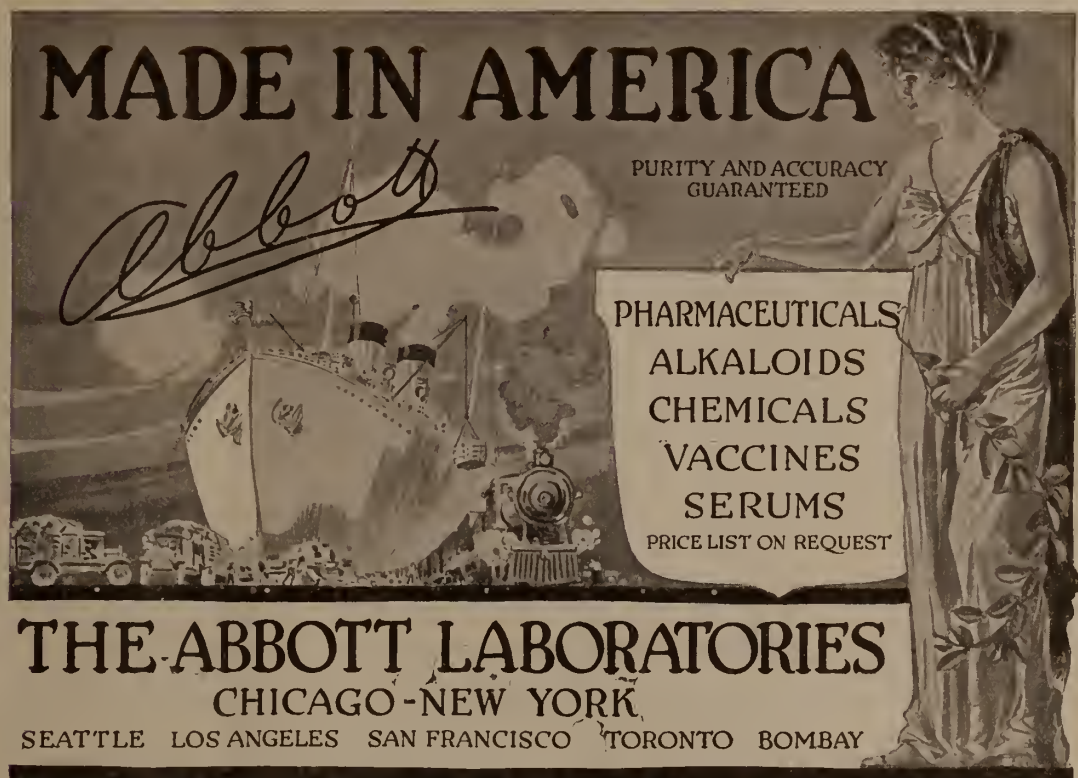
A failure to digest the curd of milk, an excess in amount of milk fat in the food mixture or an intolerance for fat in any but very small amounts, are frequent causes of constipation in infants.

These errors of diet, which impair the nutritive value of the infant's nourishment, should be corrected by adjusting the modification to meet the baby's digestive capacity.

Mellin's Food

may be used successfully in overcoming difficulties of this nature without lessening the amount of available nutrition. Details of the method of procedure will be sent to physicians, upon request.

Mellin's Food Company, Boston, Mass.



MADE IN AMERICA

Abbott

PURITY AND ACCURACY
GUARANTEED

PHARMACEUTICALS
ALKALOIDS
CHEMICALS
VACCINES
SERUMS
PRICE LIST ON REQUEST

THE ABBOTT LABORATORIES
CHICAGO-NEW YORK
SEATTLE LOS ANGELES SAN FRANCISCO TORONTO BOMBAY

The Standard Laboratories

MANUFACTURING PHARMACISTS

QUALITY, SERVICE and PRICE of drugs are necessary to success in the practice of medicine. Our products are manufactured from the purest drugs and chemicals obtainable, under the most skillful supervision, and the service is prompt. Our prices are the lowest consistent with quality.

YOUR ORDERS SOLICITED

2626-2628 Shields Avenue - CHICAGO, ILL.

Phone Calumet 6090

MANY A SUCCESSFUL PHYSICIAN

has learned from practical experience to
appreciate the therapeutic efficiency of

Gray's Glycerine Tonic Comp.

FORMULA DR. JOHN P. GRAY

Its prompt effect on the appetite, digestion
and nutrition can be confidently relied upon.

If you are not personally familiar with the remarkable
tonic properties of "Gray's" write for
special six-ounce sample.

CONSTITUENTS

Glycerine
Sherry Wine
Gentian
Taraxacum
Phosphoric Acid
Carminatives

DOSAGE—ADULTS: Two to four teaspoon-
fuls in a little water before meals three or
four times daily.

CHILDREN—One-half to one teaspoonful in
water before meals.

INDICATIONS

Auto-Intoxication
Atonic Indigestion
Anemia
Catarrhal Conditions
Malnutrition
Nervous Ailments
General Debility

THE PURDUE FREDERICK CO., 135 CHRISTOPHER STREET, NEW YORK.

In the Treatment of

Cystitis—Urethritis Pyelitis—Prostatitis—Bacilluria

HELMITOL

ACTS AS

An Efficient Urinary Antiseptic

Agreeable of Administration—Generally Well-Tolerated
by the Gastro-Intestinal and Urinary Tract.

Conveniently taken in Tablets, which readily dissolve.

Supplied in 5 gr. tablets, bottles of 25 and 100, and in powder in ounces.

Samples and Literature supplied by

THE BAYER COMPANY, Inc.
117 Hudson St., New York, N. Y.

Chicago Pasteur Institute

26th YEAR

812 NORTH DEARBORN STREET

CHICAGO

FOR THE PREVENTIVE TREATMENT OF HYDROPHOBIA

ANTONIO LAGORIO, M.D. LL.D., Medical Director

G. B. BRUNO, M.D., Associate Director

FRANK A. LAGORIO, M.D., Associate Director

Announcement—When patients are unable to come to
Institute, we can furnish physicians
our course of Pasteur treatment by mail, in the State of Illinois.
Telephone Superior 973.

N. B.—We have no branches and the use of our name is unauthorized.

READER! are you buying your supplies from our advertisers?

Our advertising pages are your property as a
member of the Illinois State Medical Society

Advertisers will pay for space in proportion as you buy from them,
and thus make the space valuable to them.

Order now, and write that you saw the "ad" in the JOURNAL.

SWAN-MYERS Rheumatic Bacterin

MADE from a number of strains of Streptococcus
obtained by blood cultures from cases of acute
and chronic Arthritis.

The most specific treatment for arthritic condi-
tions known to modern medicine.

In 20 Mil.
Rubber
Stoppered Vials
\$3.00

Literature and complete directions with
each stock package.

SWAN-MYERS COMPANY

Pharmaceutical and Biological Laboratories

INDIANAPOLIS, IND., U. S. A.

Mulford Ampuls

The Mulford sterile ampul offers a convenient and safe method of administering subcutaneously accurate doses of many potent drugs. The



Large autoclave for sterilization, with live steam under pressure, of syringes and other containers, and ampuls containing hypodermic solutions.

H. K. Mulford Company is particularly well equipped with the laboratory facilities necessary for preparing, sterilizing and testing the solutions for sterility.

The Mulford ampuls are of flint insoluble glass with flat bottom and shoulder, insuring easy transfer of solution to the syringe. They are furnished in boxes containing 12 ampuls,

except ampuls of Cornutol, Emetine and Quinine and Urea Hydrochloride, which are furnished in boxes of 6 ampuls.

Selected List of Mulford Sterile Ampuls

No.	NAME	No.	NAME
2	Atropine Sulphate, 0.0006 Gm. (1-100 gr.)	42	Mercury Succinimide, 0.01 Gm. (1-6 gr.)
4	Caffeine and Soda Benzoate, 0.25 Gm. (3-4 gr.)	43	Morphine Hydrochlor., 0.016 Gm. (1-4 gr.)
5	Caffeine and Soda Benzoate, 0.5 Gm. (7 1-2 gr.)	44	Morphine Sulphate, 0.01 Gm. (1-6 gr.)
9	Camphor, 0.1 Gm. (1 1-2 gr.). Oil of Sweet Almond, 1 mil	45	Morphine Sulphate, 0.008 Gm. (1-8 gr.)
10	Camphor, 0.2 Gm. (3 gr.). Oil of Sweet Almond, 1 mil	46	Morphine Sulphate, 0.016 Gm. (1-4 gr.)
12	Cornutol, 2 mls (c.c.)—vacule ampuls	47	Morphine and Atropine No. 1.
14	Emetine Hydrochloride, 0.005 Gm. (1-12 gr.)		Morphine Sulphate, 0.016 Gm. (1-4 gr.)
15	Emetine Hydrochloride, 0.02 Gm. (1-3 gr.)		Atropine Sulphate, 0.0004 Gm. (1-150 gr.)
16	Emetine Hydrochloride, 0.032 Gm. (1-2 gr.)	51	Pituitary Extract, physiologically tested, 1-2 mil (c.c.)
17	Emetine Hydrochloride, 0.04 Gm. (2-3 gr.)	52	Pituitary Extract, physiologically tested, 1 mil (c.c.)
24	Iodine Solution, 3.5 per cent in 1-mil ampuls. "First Aid Ampuls."	54	Quinine Dihydrochlor., 0.25 Gm. (3-4 gr.)
35	Mercuric Chloride Corrosive, 0.01 Gm. (1-6 gr.)	55	Quinine Dihydrochlor., 0.5 Gm. (7 1-2 gr.)
36	Mercuric Chloride Corrosive, 0.0012 Gm. (1-50 gr.)	58	Quinine and Urea Hydrochlor., 1 per cent
		61	Sodium Cacodylate, 0.1 Gm. (1 1-2 gr.)
		62	Sodium Cacodylate, 0.2 Gm. (3 gr.)
		64	Sodium Cacodylate, 0.5 Gm. (7 3-4 gr.)

Complete List of Mulford Sterile Ampuls on Request



H. K. Mulford Company

Manufacturing and Biological Chemists
Philadelphia, U. S. A.

25105



Wood Non-Toxic Bacterins

SAFE - STERILE - DEPENDABLE

Used Intravenously with Maximum Immunizing Power

ASTHMA LOGICALLY TREATED

One Inoculation Relieves Immediate Attack.

SPECIFY N. T. NON-TOXIC TUBERCULIN

The best tuberculin in all types. Try it and be convinced. Non-Toxic antistreptococcic, rheumatic, ozena, staphylococcic, gonococcic, pneumococcic, acne, and asthma bacterins are effective. TRY THEM and succeed in such infections. The intravenous inoculation of Non-Toxic Typhoid Bacterin aborts the disease at its inception.

Non-Toxic Autogenous Bacterins succeed where others fail, because they are free of Excess Toxins, and produce rapidly a maximum of antibodies.

Up-to-date Users of Vaccines specify The Non-Toxic Bacterins. Phone Wabash 7131
Made by DR. FRANK M. WOOD, 209 South State Street, CHICAGO

Buy from our advertisers.
If they don't give as good
or better value than others,
kick to us—

We'll do the rest

The STORM Binder and Abdominal Supporter

PATENTED



Special High Kidney Belt

MEN, WOMEN, CHILDREN and BABIES

No Whalebones. No Rubber Elastic.
Washable as Underwear

High and Low Operations, Hernia,
Relaxed Sacro-iliac Articulations,
Floating Kidney, Obesity, Preg-
nancy, Ptois, Pertussis, etc.

Send for illustrated folder and Testimonials of Physicians.
Mail Orders filled within Twenty-four Hours.

KATHERINE L. STORM, M. D.
1541 Diamond St., PHILADELPHIA, PA.

50% Better Prevention Defense Indemnity

1. All claims or suits for alleged civil malpractice, error or mistake, for which our contract holder,
2. Or his estate is sued, whether the act or omission was his own
3. Or that of any other person (not necessarily an assistant or agent),
4. All such claims arising in suits involving the collection of professional fees,
5. All claims arising in autopsies, inquests and in the prescribing and handling of drugs and medicines.
6. Defense through the court of last resort and until all legal remedies are exhausted.
7. Without limit as to amount expended.
8. You have a voice in the selection of local counsel.
9. If we lose, we pay to amount specified, in addition to the unlimited defense.
10. The only contract containing all the above features and which is protection per se.

A Sample Upon Request

The
MEDICAL PROTECTIVE COMPANY
of Ft. Wayne, Indiana.

Professional
Protection, Exclusively

Your Ever Helpful Assistant in Diagnosis



For Preparation of Patients
(Procuring blood, etc.)

Make use of the service offered by the consulting laboratory in verifying your clinical diagnosis. We make every analysis of worth. Send us your specimens for

WASSERMANN TEST, and its best control, The HECHT-GRADWOHL

Complement Fixation Test Blood Chemical Analysis
(for Gonorrheal) (urea, nitrogen, uric acid)
Urine Analysis creatinine, sugar, carbon
Vaccines dioxide combining power.)
Cultures
Tissue Examinations Pasteur Treatment

Shall we send you our new booklet on Blood Chemistry? We furnish free all literature, fee lists, containers, etc.

Gradwohl Biological Laboratories

R. B. H. GRADWOHL, M. D., Director

932 N. Grand Ave.,

ST. LOUIS, MO.

ESTABLISHED 1893

Columbus Medical Laboratory

31 N. STATE ST., CHICAGO

ADOLPH GEHRMAN, Pres.

Send your *pathologic specimens* to us for diagnosis.
We can assure you a valuable and prompt service.
Write for instructions and fee table.

Let us make complete examinations in *post-mortem* studies.

Ask for advice in cases of *suspected poisoning* and toxicological work

Consult us when you have *medico-legal cases*.

COLUMBUS MEDICAL LABORATORY

Columbus Memorial Building

CHICAGO, ILL.



DR. WEIRICK'S SANITARIUM

FORMERLY DR. BROUGHTON'S SANITARIUM
ESTABLISHED IN 1901

**For Opium, Morphine
Cocaine and Other Drug
Addictions, Including
Alcohol and Special
Nervous Cases**

Methods easy, regular, humane.
Good heat, light, water, help, board,
etc. Number limited to 44. A well
kept home. Nervous-Mental De-
partment in charge of Dr. W. L.
Ransom. Address

DR. G. A. WEIRICK
SUPERINTENDENT

2007 South Main Street

Phone 536
Rockford - - - Illinois

PETTEY & WALLACE 958 S. Fifth Street MEMPHIS, TENN. **SANITARIUM**



FOR THE TREATMENT
OF

**Drug Addiction, Alcoholism,
Mental and Nervous Diseases**

A quiet, home-like, private, high-
class institution. Licensed. Strictly
ethical. Complete equipment. Best
accommodations.

Resident physician and trained
nurses.

Drug patients treated by Dr.
Petty's original method.

Detached building for mental
patients.

The Peoria Sanatorium

A private Sanatorium for the treatment of Nervous and Mental Diseases,
by modern methods. Flowing Sulphur Spring. Licensed by the State.

DRUG AND LIQUOR HABITS TREATED

WRITE FOR BOOKLET

Director, DR. GEO. W. MICHELL

PHONE MAIN 225.

Address, 106 N. Glen Oak, PEORIA, ILL.

The McLain Orthopedic Sanitarium

A private institution devoted exclusively to the treatment of orthopedic conditions. Our equipment includes a complement of Zander and Roessel-Schwartz active and passive movement machines for the treatment of Infantile Paralysis.

935 Aubert Ave.,

St. Louis, Mo.



Nurses Promptly Furnished for Leading Physicians

BEST NURSE REGISTRY IN AMERICA

TELEPHONE: DIVERSEY 2990

ILLINOIS NURSES REGISTRY

544 Garfield Ave.

Chicago

Psycho-Physical Therapy

The busy physician often finds his time unduly taken up by patients who should be made to know that they are first aids to the physician in accomplishing their cure.

Every physician recognizes the absolute value of psycho-physical therapy as an adjunct to the medicinal treatment.

It is in such cases that Miss Susanna Cocroft can be of great assistance to the physician. Being a woman she understands her sex as a man, however gifted, cannot. As a trained woman, both by study and by years of experience, she is able to combine the force of suggestion and her pupil's physical effort in exercise, deep breathing and correct poise. She thus arouses these women to help themselves. She enthruses them in building up their physical resistance and thus aids in establishing their mental equilibrium.

Miss Cocroft inspires her pupils to "hold on" in practicing her special exercises for developing physical resistance, for reducing excess flesh or in building flesh, and this persistence of the patient herself in accomplishing results aids her recovery. Each case is individual and is so studied.

Miss Cocroft is in thorough sympathy with the ethics of the medical profession and is cooperating with physicians in cases wherein physical exercises are of benefit.

Every practitioner should acquaint himself with the system of exercises ORIGINATED by Miss Cocroft. They are based on an extensive experience and a thorough anatomic and physiologic knowledge.

On request she will send you full information concerning her work. Address

SUSANNA COCROFT

624 MICHIGAN BOULEVARD

CHICAGO



OIL OF THUJA COMPOUND

(N. B. & CO.)

Active Constituents: Oil of Thuja, Oil of Cajuput, Oil Sesame, Oil Persica

Oil of Thuja has obtained considerable reputation as an absorbent of adenoid or lymphoid tissue, and in the treatment of hypertrophies of the mucous membrane of the nasal cavity and nasopharynx, especially in children.

Oil of Thuja Compound N. B. & CO. combines oil of Thuja with other oils having a similar therapeutic action, the preparation being non-irritant and non-toxic and designed to be applied directly to the parts affected by means of a nasal or post-nasal spray or, in the case of young children, by dropping it into the nostrils while the patient is sleeping or in a reclining position. Literature furnished to physicians upon request.

NELSON, BAKER & CO. Detroit Mich., Kansas City, Mo.

AREND-ADAMICK DOUBLE KUMYSS

AN IDEAL FOOD for all conditions of enfeebled digestive power from any cause, malnutrition in infants or the aged—a sustaining diet during the course of acute infectious diseases and gastro-intestinal disorders
EASILY ASSIMILATED and contains the elements essential for the nourishment of the organism.
A VALUABLE NUTRIENT in Typhoid, Enteritis, Marasmus, Acute fevers, Gastric Ulcer, Anemia, Vomiting of Pregnancy, Asthenic fevers and during Convalescence.

Its taste is pleasantly acidulous—its enticing flavor is unusually acceptable to the capricious appetite of the sick—it may be used for days as an exclusive diet.

Booklet giving instructions and interesting clinical report, also price list, free on request.

A. AREND DRUG COMPANY

Manufacturing Chemists

182 West Madison Street, Chicago

57 years ago

when we began to make more pharmaceuticals than we needed for what was then the best and largest prescription trade in Baltimore, we decided to make nothing but *real* "Quality Products"—products that we could ethically exploit and honestly recommend to our near-by medical friends—friends who knew us personally.

During all of these 57 years we have lived up to that rigid standard; have seen our business steadily grow to its present international scope; and we're too old now to even think of changing that tried-and-true policy.

We "have the habit" of making "Quality Products"—just as so many of the most particular prescribers "have the habit" of prescribing them.

SHARP & DOHME

Purveyors to your profession since 1860

Rejuvenation of Creosote

VALUE OF CREOSOTE

The value of creosote has long been known. Many authorities might be quoted, but the following will suffice:

Shoemaker (Materia Medica and Therapeutics, page 409), says: "In the treatment of tuberculosis Creosote is, according to Jacobi, the most valuable drug which we possess."

Potter (Materia Medica and Therapeutics, page 253), says: "In pulmonary tuberculosis, when well borne by the stomach and continued over a long period of time, it has probably proved more efficient than any other remedy."

OBJECTIONS TO CREOSOTE

The objections to creosote have been so great as to prevent its employment to considerable extent. Its administration, as one writer states, has been hampered by the acrid taste and by the nausea and vomiting too readily introduced in many with any other than small doses.

OBJECTIONS OVERCOME

When creosote is chemically combined with calcium, as in Calcreose, the objections are very largely overcome and it is

found that large doses may be given over a long period of time without difficulty.

FORMULA OF CALCREOSE

Calcreose is a reddish-brown granular powder, which contains fifty per cent creosote chemically combined with calcium.

In the process of manufacture 50 pounds of U. S. P. beechwood creosote is used in making 100 pounds of Calcreose.

Calcreose Powder Per Pound, \$3.00
Prepared by adding to one gallon of water.

Calcreose Tablets, coated brown; representing 4 grs.
100, 35c; 500, \$1.55; 1,000, \$3.00

Calcreose No. 2 Tablets, coated yellow; Calcreose, 4 grs.;
Iron, reduced, ½ gr.; Arsenic Trioxide, 1-150 gr.; Strychnine, 1-150 gr. 100, 40c; 500, \$1.70; 1,000, \$3.25

THERAPEUTICS OF CALCREOSE

We have issued a booklet under the title: "Therapeutics of Calcreose," which we are pleased to mail to physicians upon request. In this booklet we quote authorities upon the value of both creosote and calcium and the advantages of a combination of the two. We also include reprints of articles published by physicians in well known medical journals in which successful results from the use of Calcreose are reported. These reports refer particularly to its use in tuberculosis.

SPECIAL OFFER TO PHYSICIANS

Since it is usually necessary to give Calcreose in large doses over a long period of time, especially in tuberculosis, samples are insufficient to test it thoroughly. While we supply samples, we urge physicians to order sufficient Calcreose to give it a thorough test.

In order that physicians may do this without risk we will send it ON APPROVAL. If results are satisfactory you will be glad to pay for it; if not satisfactory, we will not let you pay for it.

Thousands of physicians have ordered Calcreose on approval and are glad they did, for they have found they could safely administer large doses, and in consequence, they have been getting splendid results—especially in throat and lung diseases.

Your greatest ambition is to cure your patients. You may be skeptical regarding the value of Calcreose, but you will admit we offer some very strong evidence. Can you afford, under the circumstances, NOT to give Calcreose a trial?

Needless to say, if we did not think the trial would result favorably, and that you would continue to prescribe Calcreose, we would not make the offer.

ORDER HERE

THE MALTBIE CHEMICAL CO.,
Newark, N. J.

I. M. J. 117

Please send me your booklet "Therapeutics of Calcreose," FREE. Also send prepaid and on approval (draw pen through items not wanted.)

1 Lb. Calcreose Powder \$3.00
500 Calcreose Tablets 1.55
200 Calcreose No. 2 Tablets80
1000 Drysdale's Aperient Tablets 1.25

I will remit in 60 days for all I find satisfactory. Nothing to be returned, nothing to be paid, if results are not satisfactory.

Name M. D.

Address

Drysdale Aperient Tablets

Formula: Rhubarb 1¼ gr., aloes 1¼ gr., ipecac 5/12 gr., nux vomica ½ gr.

The demand for laxatives is universal. NEW products are constantly appearing, yet it is doubtful if many are equal to the OLD Drysdale formula which we redeemed a few years ago.

The Editor of The Medical World, said of this formula: "No Cathartic will cure constipation. But this tonic laxative will come as near to it as anything the Editor has ever discovered. A cathartic leaves the musculature of the intestine debilitated and the patient is worse than previous to ingesting the cathartic; this formula is not in any sense a cathartic, and tones up the intestine so that the patient is practically better after taking it, even through long periods."

THE MALTBIE CHEMICAL CO. NEWARK, N. J.

Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



Main College Building and Willard Hospital

**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant.
The Faculty consists of men who have distinguished themselves as medical educators.
The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction.
The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

**A Post-Graduate School for Prac-
titioners of Medicine**

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

Home Training In Nursing



We offer a thorough extension course to beginners and also to practical nurses wishing to perfect themselves in the theory and science of nursing.

There is in every community a demand for competent nurses — women physically qualified and possessing natural ability, who for various reasons cannot leave home to get their training. Through the aid of the very thorough system of instruction used by this school for a period of sixteen years, we have trained hundreds of women who have "made good" as practical nurses. In fact our graduates adapt themselves to the inconveniences of private nursing more readily than the hospital-trained nurse. They are loyal to the home doctor, whose co-operation has made their success possible.

Reputable physicians are invited to investigate our methods and co-operate with us by sending the names of earnest women who in their estimation would make desirable applicants. Tuition fees very reasonable—small payment plan. Write for the Sixteenth Annual Announcement. Address

**Karen Esmann, Registrar
CHICAGO SCHOOL OF NURSING
116 S. Michigan Blvd., Chicago, Ill.**



Doctor, You Can't Afford to Have Your Car Laid Up for Repairs

Polarine minimizes friction and repairs and adds power and life to your motor. Use Polarine and lubrication begins the minute your engine starts.

Polarine sales are increasing at the rate of one million gallons a year. Its use is recommended by the Standard Oil Company for any style or make of car.

Polarine

FRICION REDUCING MOTOR OIL

is not only fair weather oil. It flows as freely at zero as at 100 degrees. It maintains the correct lubricating body at any motor speed or temperature.

Polarine is produced scientifically by acknowledged authorities who have made a life study of lubrication.

Order a half barrel today and protect your car investment.

Standard Oil Company (Indiana) **Chicago, U. S. A.**

Use Red Crown Gasoline and get more power, more speed, more miles per gallon

INDEX TO ADVERTISERS

Abbott Laboratories	7
A. Arend Drug Co.	27
Bayer Company.....	8
Bellevue Sanitarium	22
Beverly Farm School.....	24
Chicago College of Medicine and Surgery.....	29
Chicago Eye, Nose & Throat College.....	29
Chicago Fresh Air Hospital.....	20
Chicago Laboratory	36
Chicago Maternity Hospital	29
Chicago Pasteur Institute	9
Chicago School of Nursing	29
Cincinnati Sanitarium	24
College of Medicine, Univ. of Ill.....	34
Cocroft, Susanna	26
Columbus Medical Laboratory.....	12
Crittenton, Chas. N., Co.....	34
Edward Sanatorium	21
Fletcher's Sanatorium	23
Gradwohl Biological Laboratories.....	12
Horlick's Malted Milk Co.....	2
Illinois Nurses Registry.....	26
Kenilworth Sanitarium	22
Laboratory of Pathology and Bacteriology.....	2
Lambert Pharmaceutical Company.....	13
Lederle Antitoxin Laboratory.....	35
Maltbie Chemical Company.....	28
Medical Protective Co.....	11
Mead, Johnson & Co.....	4
Mellier Drug Co.....	13
Mellin's Food Co.....	6
Milwaukee Sanitarium	23
McIntosh, John, Co.....	17
McLain Orthopedic Sanitarium	26
Mueller & Co., V.....	26

Mulford, H. K., & Co.....	10
Murphey Sanatorium	19
Nelson, Baker & Co.....	27
Norbury Sanitarium	21
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Parke, Davls & Co.....	18
Pennoyer Sanitarium	6
Peoria Mud Baths	24
Peoria Sanatorium	25
Petty & Wallace's Sanitarium.....	25
Phillips Co., Chas. H.....	32
Physicians' Radium Association.....	17
Pine Sanatorium	34
Pitman-Moore Co.....	4
Pottenger Sanatorium	20
Purdue, Frederick, Co.....	8
Pure Gluten Food Co.....	5
Quaker Oats Co.....	5, 33
Radium Institute	36
Ransom Sanitarium	23
Riverside Sanitarium	22
Saunders Co., W. B.....	front cover
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Sherman, G. H., M. D.....	5
Standard Laboratories	7
Standard Oil Co.....	3, 30
Storm, Katherine L., M. D.....	11
Swan-Myers Co.....	9
Thompson's Malted Food Company.....	13
Tilden Co., The.....	6
Vacuum Insulated Milk Can Co.....	14, 15
Wander, Dr. A.....	16
Waukesha Moor (Mud) Bath Co.....	24
Waukesha Springs Sanitarium	22
Weirick's Sanitarium	25
Wood, Dr. Frank M.....	11

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.....	11
--------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.....	3, 30
----------------------	-------

FOOD

Arend-Adamick Koumyss	27
Horlick's Malted Milk Co.....	2
Mead, Johnson & Co.....	6
Mellin's Food Co.....	6
Pure Gluten Food Co.....	5
Quaker Oats	5, 33
Thompson's Malted Food Company.....	13
Wander's Ovaltine.....	16

HOSPITAL

Chicago Fresh Air Hospital	20
Chicago Maternity Hospital	29

INVESTMENTS AND INSURANCE

Medical Protective Co.....	11
----------------------------	----

LABORATORY

Abbott Laboratories	7
Chicago Laboratory	36
Columbus Medical Laboratory.....	12
Gradwohl Biological Laboratories.....	12
Laboratory of Pathology and Bacteriology.....	2
Standard Laboratories	7
Swan-Myers Co.....	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.....	front cover
-------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery.....	29
Chicago Eye, Ear, Nose and Throat College.....	29
College of Medicine, Univ. of Ill.....	34

MUD BATHS

Peoria Mud Baths.....	24
Waukesha Moor (Mud) Bath Co.....	24

NURSES

Chicago School of Nursing.....	29
Illinois Nurses Registry.....	26

PHARMACEUTICALS

Abbott Laboratories	7
Bayer Company.....	8
Crittenton, Chas. N., Co.....	34
Kenilworth Sanitarium	22
Lederle Antitoxin Laboratory.....	35
Lambert Pharmacal Company.....	13
Maltbie Chemical Company	28
Mead, Johnson & Co.....	4
Mellier Drug Co.....	13
Mulford, H. K., & Co.....	10
Nelson, Baker & Co.....	27
Parke, Davls & Co.....	18
Phillips Co., Chas. H.....	32
Pitman-Moore Co.....	4
Purdue, Frederick, Co.....	8
Sherman's Bacterins	5
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Swan-Myers Co.....	9
Tilden Co., The.....	6
Wood's Bacterins	11

SANATORIA & SANITARIA

Bellevue Sanitarium	22
Cincinnati Sanitarium	24
Edward Sanatorium	21
Fletcher's Sanatorium	23
Kenilworth Sanitarium	22
Norbury Sanitarium	21
McLain Orthopedic Sanitarium.....	26
Milwaukee Sanitarium	23
Murphey Sanatorium	19
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Pennoyer Sanitarium.....	6
Peoria Sanitarium	25
Petty & Wallace's Sanitarium.....	25
Pine Sanatorium	34
Pottenger Sanatorium	20
Radium Institute	36
Ransom Sanitarium	23
Riverside Sanitarium	22
Waukesha Springs Sanitarium	22
Weirick's Sanitarium	25

SURGICAL INSTRUMENTS

McIntosh, John, Co.....	7
Mueller & Co., V.....	26

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for
Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and
Invalid feeding.

Phillips' Phospho-Muriate of Quinine

Compound

NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied
Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.

NEW YORK

LONDON

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

Pyelitis Treated Successfully with Silvol. J. C. R. Wettstein, M. D.....	181
---	-----

EDITORIAL.

Change of Date of Annual Meeting....	184
Notice—Members	184
Senate Bill 90.....	184
Why Not Join the Union?.....	185
New York Medical Society Rejects Health Insurance..	185
Rush Alumni.....	185
Is Rush Medical College to Become Extinct?. O. T. Fraser, M. D.....	186
Objections to Social or Compulsory Health Insurance...	188
Workmen's Compensation Commission.....	195
Your Country Needs You.....	195
T. B. Notes	196
State Road Examinations.....	196
Medical Society of the Missouri Valley.....	197

PUBLIC HEALTH

Conferences on Infantile Paralysis.....	197
Notes on Legislation Affecting Health Activities.....	198
Medical Interests Amply Conserved.....	199
Contagious Disease Situation in Illinois.....	200
Pending Legislation of Interest to Physicians.....	201

CORRESPONDENCE.

Laboratory for Cook County Hospital. Dr. J. R. Pen- nington	203
--	-----

SOCIETY PROCEEDINGS.

Cook County: /	
Chicago Medical Society.....	205
Chicago Roentgen Society.....	207
Madison County.....	208
Personals	208
News	209
Marriages	210
Obituaries	211
Deaths	212
New and Non-official Remedies.....	212
Book Notices	213

COUNTY SOCIETIES—Continued

Pope County	
J. A. Fisher, Pres.....	Brownsfield
L. S. Barger, Secy.....	Golconda
Pulaski County	
J. F. Hagan, Pres.....	Mound City
W. R. Wesenberg, Secy.....	Mound City
Randolph County	
Wm. R. McKenzie, Pres.....	Chester
John P. Grimes, Secy.-Treas.....	Menard
Richland County	
A. T. Telford, Pres.....	Olney
E. H. Horner, Secy.....	Olney
Rock Island County	
Geo. A. Wiggins.....	Milan
A. E. Williams, Secy.....	Rock Island
St. Clair County	
J. H. Fulgham, Pres.....	E. St. Louis
A. E. Hansing, Secy.....	Belleville
Saline County	
M. D. Impson, Pres.....	Brushy
E. W. Cummins, Secy.....	Harrisburg
Sangamon County	
Arthur E. Prince, Pres.....	Springfield
H. B. Henkel, Secy.....	Springfield
Schuyler County	
A. W. Ball, Pres.....	Rushville
J. C. Steiner, Secy.....	Rushville
Scott County	
J. W. Eckman, Pres.....	Winchester
H. H. Fletcher, Secy.....	Winchester
Shelby County	
F. A. Martin, Pres.....	Tower Hill
Frank P. Auld, Secy.....	Shelbyville
Stark County	
James R. Holgate, Pres.....	Wyoming
Clyde Bernfeld, Secy.....	Toulon
Stephenson County	
N. C. Phillips, Pres.....	Freeport
D. G. Smith, Secy.....	Freeport
Tazewell County	
H. L. Yoder.....	Morton
F. C. Gale, Secy.....	Pekin
Union County	
S. G. Martin, Pres.....	Anna
E. V. Hale, Secy.....	Anna
Vermilion County	
J. B. Morton, Pres.....	Ridge Farm
Solomon Jones, Secy.....	Danville
Wabash County	
P. G. Manley, Pres.....	Mt. Carmel
A. A. Aukenbrandt, Secy.....	Mt. Carmel
Warren County	
Philo B. Conant, Pres.....	Roseville
H. M. Camp, Secy.....	Monmouth
Washington County	
R. Jack, Pres.....	Okawville
H. Schmidt, Secy.....	Addieville
Wayne County	
T. J. Hilliard, Pres.....	Fairfield
Oastella F. Blakely, Secy.....	Fairfield
White County	
C. B. Staley, Pres.....	Enfield
John Niess, Secy.....	Carmi
Whiteside County	
W. H. Durkee, Pres.....	Fulton
H. N. Schmalzing, Secy.....	Fulton
Will County	
Marion K. Bowles, Pres.....	Joliet
L. J. Lennon, Secy.....	Joliet
Williamson County	
J. G. Parmley, Pres.....	Marion
H. A. Felts, Secy.....	Marion
Winnebago County	
Wm. E. Park, Pres.....	Rockford
C. M. Ranseen, Secy.-Treas.....	Rockford
Woodford County	
W. C. Cotton, Pres.....	Benson
H. N. Barth, Secy.....	Metamora



Oat Food

Made Doubly-Delicious

All the world over Quaker Oats is the favorite brand of oat food.

Even in the British Isles, from which we used to import Scotch and Irish oats.

That is because of a flavor which has never been matched, and which gives a new delight to the oat dish.

Quaker Oats

Queen Oats Flaked

The luscious flavor is due to selection. All the puny, starved grains are discarded. We get but ten pounds of plump grains from a bushel, fit for Quaker Oats.

So in this brand one gets just the cream of the oats. Only large, white flakes, with their exquisite flavor and aroma.

10c and 25c Per Package
Except in Far West and South

The Quaker Oats Company

Chicago

(1483)

G Tested
professionally—
Approved professionally.
**Exceptionally
Palatable,
Digestible, Dependable.**

Physicians have been able to prescribe to advantage

Hydroleine

in cases in which cod-liver oil is indicated. Hydroleine is pure cod-liver oil emulsified in a manner which makes it extremely utilizable. It is without medicinal admixture.

Sold by druggists.

THE CHARLES N. CRITTENTON CO.

115 Fulton Street, New York

Sample will be sent to physicians on request.

WANTED, FOR SALE, AND RENT DEPARTMENT

Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

DRUG AND LIQUOR HABITS—SANITARIUM
established eighteen years. No suffering, no danger, close medical care, good nursing. Pleasant surroundings, quick and absolutely satisfactory results. Ralph Sanitarium, 529 Highland Avenue, Kansas City, Mo.

THE COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS



Minimum admission requirements to the Freshman year, fifteen units of work from an accredited high school and in addition two years in a recognised university or college involving at least one year in college physics, biology, chemistry and six college hours in French or German.

For course of Medical study, four years are required. Eligible students will receive the degree of B. S. at the completion of the Sophomore year. ¶ Well equipped laboratories and good hospital facilities.

¶ Excellent location in the heart of Chicago's great medical center.
¶ Collegiate year begins September 28th, 1916. ¶ For full information concerning course of study, fees, etc., address Secretary,
Box 51 COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS
Congress and Honore Streets Chicago, Illinois

Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. No Suffering. Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
Local and Long Distance Telephone, Calumet 4543



Resident Physician

James H. Appleman, M. D.

CONSULTING STAFF

Surgeon

Gustav M. Blech, M. D.

104 South Michigan Ave.

Genito-Urinary

Frank Wieland, M. D.

122 South Michigan Ave.

Internist

Walter B. Metcalf, M. D.

25 East Washington St.

Electro-Therapy

Emil H. Grubbe, M. D.

130 North State Street

Throat, Nose and Ear

Richard H. Street, M. D.

25 East Washington St.

Pathologist

W. Henry Wilson, M. D.

3129 Rhodes Ave.

Oculist

Carleton A. Harkness, M. D.

29 East Madison St.

The Pollen Therapy of **HAY FEVER**

In 1915, POLLEN VACCINE-LEDERLE was used by over 600 physicians for the prophylaxis and treatment of hay fever.

In 1916, POLLEN VACCINE-LEDERLE was employed by more than 1,500 practitioners. The favorable results obtained during these two consecutive years are very similar, and establish conclusively the value of POLLEN VACCINE-LEDERLE in hay fever.

	1915 Results	1916 Results
As a prophylactic	83% favorable	80% favorable
In the treatment	89% favorable	91.7% favorable
Asthma relieved	84.2%	78.5%

POLLEN VACCINE-LEDERLE is prepared from the pollens of timothy, red top, June grass, orchard grass, sorrel dock, daisy, maize, ragweed and goldenrod, all of which are known to be important in causing hay fever in the spring, summer and fall. Hence, our vaccine offers protection against each individual pollen as well as against all the pollen collectively.

POLLEN VACCINE-LEDERLE is administered subcutaneously with an ordinary hypodermic syringe. It is accurately standardized and may be used without preliminary diagnostic tests. It is manufactured under U. S. Government License No. 17.

POLLEN VACCINE-LEDERLE is supplied in the following packages:

- Complete Series, containing doses 1 to 15.
- Series A, containing doses 1 to 5.
- Series B, containing doses 6 to 10.
- Series C, containing doses 11 to 15.

Full directions as to dosage and administration accompany each package

Literature will be sent to any physician upon request

LEDERLE ANTITOXIN LABORATORIES
SCHIEFFELIN & CO., Distributors NEW YORK

THE RADIUM INSTITUTE

1604 Mallers Building, 59 East Madison Street
Corner Wabash Avenue, Telephone Randolph 5794

CHICAGO

DR. FRANK E. SIMPSON, *Director*

*Treatment of Malignant and Benign Growths with
Radium. Post-Operative Prophylactic Radiations. Appli-
cators for all purposes, including many of Special Designs.*

COUNCIL: DR. F. A. BESLEY, DR. E. C. DUDLEY, DR. A. R. EDWARDS,
DR. O. T. FREER, DR. M. HERZOG, DR. L. E. SCHMIDT, DR. G. F. SUKER.



CHICAGO LABORATORY

CLINICAL—ANALYTICAL

Marshall Field Annex Building, 25 E. Washington St., CHICAGO

Established 1904

Phone Randolph 3610

WASSERMANN TEST

Controlled by the Noguchi System

SPINAL FLUIDS

COMPLEMENT FIXATION for GONORRHEA

COMPLEMENT FIXATION for TUBERCULOSIS

All other Laboratory Tests

Send for Booklet of Instructions

Prompt reports by mail, telephone and telegraph

Our names and reputations stand back of our work.

RALPH H. WEBSTER, M. D., Ph. D.

Director of Chemical Department

THOMAS L. DAGG, M. D.

Director of Pathological Department

C. CHURCHILL CROY, M. D.

Director of Bacteriological Department



Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 4

CHICAGO, APRIL, 1917

\$2.00 a Year

CONTENTS

ORIGINAL ARTICLES

	PAGE
Appendicitis Complicating Pregnancy. <i>Aime Paul Heineck, M. D., Chicago</i>	215
A New Procedure in the Diagnosis and Determination of Cure of Gonorrhea. <i>Louis D. Smith, M. D., Chicago</i>	222
Discussion of Clinical Laboratory, X-Ray and Autopsy Findings in an Obscure Intestinal Disorder. <i>Horace M. Francis, M. D., Woodstock, Ill.</i>	228
The Surgical Care of Trachoma and Its Sequelae. <i>Edward E. Edmondson, M. D., Mt. Vernon, Ill.</i>	230
Hemorrhoidal Consideration with Reference to Modern Ideas. <i>Rollin H. Barnes, M. D., St. Louis, Mo.</i>	231

(Continued on page 32)

	PAGE
Pyelotomy vs. Nephrotomy. <i>J. Welfeld, M. D., Chicago</i>	233
Pneumonia. <i>Omar Oakley Hall, M. D., Milford, Ill.</i>	234
Indications and Results in the Radical Mastoid Operation with a Resumé of Twenty-six Cases. <i>Carroll B. Welton, M. D., Peoria, Ill.</i>	235
Tubercular Hip Disease in Children. <i>E. L. Hendricks, M. D., Lanark, Ill.</i>	238
Modern Treatment of Diabetes. <i>C. Hubart Lovewell, M. D., Chicago</i>	240
Alcoholism; Its Psychology and Its Rational Cure by Psychotherapy. <i>Albert H. Burr, M. D., Chicago</i>	245

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

Surgical Clinics of Chicago

APRIL CONTENTS

Clinic of Dr. A. J. Ochsner, Augustana —Carcinoma of the breast; intra-abdominal strangulated inguinal hernia.	Clinic of Dr. Carl B. Davis, Presbyterian —Pancreatic abscess.
Clinic of Dr. Arthur Dean Bevan, Presbyterian —Surgical lesions of colon.	Clinic of Dr. Geo. G. Davis, Presbyterian —Hallux valgus, interdigital incision.
Clinic of Dr. H. M. Percy, Augustana —Pernicious anemia; splenectomy; transfusion.	Clinic of Dr. Frederick A. Besley, Cook County —Diseases of the chest wall, including pleura.
Clinic of Dr. E. Wyllys Andrews, Mercy —Divided blood vessels as aids to wound closure.	Clinic of Dr. Kellogg Speed, Cook County —Mediastinal tumor, thyroid enlargement.
Clinic of Dr. A. E. Halstead, St. Luke's —Ranula; cyst of ductus thyroglossus; retromaxillary tumor, internal hydrocephalus, pyloric obstruction following sulphuric acid poisoning.	Clinic of Dr. D. B. Phemister, Presbyterian —Reconstruction of hepatic duct.
Clinic of Dr. M. L. Harris, Alexian Brothers —Laryngectomy under nerve blocking.	Clinic of Dr. Hugh McKenna, St. Joseph's —Bone transplantation and arthroplasty.
Clinic of Dr. Carl Beck, North Chicago —Plastic on upper extremity.	Clinic of Dr. Louis A. Greensfelder, Michael Reese —Old subcoracoid dislocation of shoulder.
Clinic of Dr. Allen B. Kanavel, Wesley —Bullet located between atlas and base of skull.	Clinic of Dr. V. C. David, Presbyterian —Local anesthesia for hemorrhoidectomy.
Clinic of Dr. D. N. Eisendrath, Michael Reese —Inguinosuperficial hernia, non-descent of testis; congenital anomalies of kidney.	Clinic of Dr. John L. Porter, St. Luke's —Calcaneocavus, tendon transplantation.

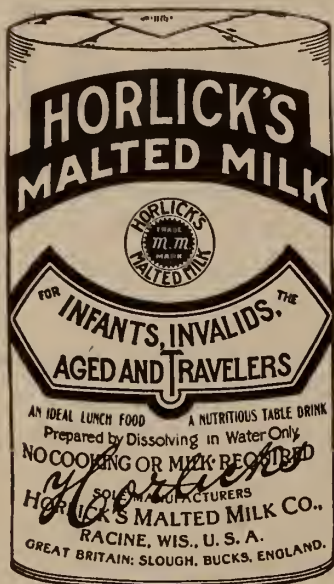
Surgical Clinics of Chicago. By leading surgeons. Issued serially, one octavo of 225 pages, profusely illustrated, every other month. Per year: Cloth, \$14.00; paper, \$10.00.

W. B. SAUNDERS COMPANY, West Washington Square, Phila.

This Issue, 6,550 Copies

THE UNIFORM QUALITY, PURITY OF INGREDIENTS AND HIGH STANDARD OF

Horlick's the Original Malted Milk



Which have been maintained for over a third of a century, make it particularly desirable for infant feeding.

Owing to its high caloric value, nourishing and refreshing properties, and perfect digestibility, it has received the favorable consideration of the profession as a diet in the treatment of Typhoid, Diphtheria, Pneumonia and Post operative cases.

Always Specify

“Horlick's”

and avoid substitutes

Horlick's Malted Milk Company, Racine, Wisconsin

CLINICAL LABORATORY ANALYSES

For your own reputation and the health of your patients **Absolute Accuracy** in laboratory analyses are prerequisites.

Quick Service must accompany such work.

**We Have Built Our Reputation and a Big Business on These
Ask Your Fellow Practitioners**

Accurate analyses of all secretions, excretions and body fluids

Wassermann Test-Tissue Diagnoses-Autogenous Vaccines

**LABORATORY OF
PATHOLOGY AND BACTERIOLOGY**

Dr. Maximilian Herzog

Dr. Meyer D. Moledetzky

Suite 1604-5 The Mallers Building

5 South Wabash Avenue

CHICAGO

Phones Randolph 5794-5795



Stanolind
Trade Mark Reg U. S. Pat. Off.

**Liquid
Paraffin**
(Medium Heavy)

*Tasteless—Odorless—
Colorless*

During Pregnancy

STANOLIND Liquid Paraffin is an admirable laxative for use during pregnancy. It produces no irritation of the bowel, has not the slightest disturbing influence upon the uterus, and no effect upon the fetus.

The regular use of Stanolind Liquid Paraffin in the later months of pregnancy is an effective means of avoiding some of the serious dangers attending the parturient state because of sluggish bowel action.

Stanolind Liquid Paraffin counteracts to a definite extent an unfortunate dietetic effect on the intestine in this manner; the concentrated diet of our modern civilized life contains so little indigestible material that the residue is apt to form a pasty mass which tends to adhere to the intestinal wall. Stanolind Liquid Paraffin modifies this food residue, and thus tends to render the mass less adhesive.

Stanolind Liquid Paraffin is mechanical in action, lubricating in effect. Its *suavity* is one of the reasons why increase of dose is never needful after the proper amount is once ascertained.

*A trial quantity with informative
booklet will be sent on request.*

Standard Oil Company

(Indiana)

72 West Adams Street

CHICAGO, U. S. A.

Sugar is an Extremely Important Constituent in Infant Feeding BUT

YOU MUST SELECT THE RIGHT SUGAR

A large part of the troubles of infant feeding has been shown to be due to the ingestion of milk sugar or cane sugar.

MEAD'S DEXTRI-MALTOSE

from the standpoint of DIGESTIBILITY and ASSIMILABILITY represents the properly balanced carbohydrate. Composition—Maltose 52%, Dextrin 41.7%, Sodium Chloride 2%.

Administration—1½ oz. Dextri-Maltose (2 heaping tablespoonfuls) to any milk and water mixtures suited to age and weight.

Literature and Samples on Request

Mead Johnson & Co.

Evansville, Ind.

There are many grades of crude drugs
offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch
Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY

Sherman's Bacterial Vaccines Preparations with a Record for Reliability

All the vaccines usually employed in the treatment of infectious diseases marketed in specially devised aseptic antiseptic bulk packages, insuring absolute safety in withdrawing contents.

5 c.c. for \$1.00 18 c.c. for \$3.00 Ampules, 6 in box, \$1.50

Daily Users of Vaccines use Sherman's

SHERMAN'S NEW BOOK

JUST OFF THE PRESS

*Devoted to the Application of
BACTERIAL VACCINES*

Explaining their therapeutic action—How, When and Where to use them.

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for \$2.50.

WRITE FOR LITERATURE

G. H. SHERMAN, M. D.

3334 Jefferson Ave. E.

Detroit, Mich.



The Winning Bran Food

We believe that Pettijohn's holds the leading place in bran foods.

Its sales have multiplied of late. And largely because physicians endorse it, we think.

It is soft rolled wheat with bran flakes hidden in it. It meets your demand for a natural food, which everybody likes.

It complies with your preference for flake bran, the efficient form.

Pettijohn's Breakfast Food and Pettijohn's Flour supply bran foods in vast variety, and for every meal.

You will find in them exactly what you want.

Pettijohn's

Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company

Chicago

(1592)

SPECIFIC INFECTIONS
ELIXIR IODO-BROMIDE OF CALCIUM COMPOUND
 With or Without Mercury Bichloride

Free Samples to the Profession

Prepared Only By

THE TILDEN COMPANY
 Pharmacists and Chemists

NEW LEBANON, N. Y.

ST. LOUIS, MO.

THE Pennoyer
Established 1887
 Kenosha, Wis., between Chicago and Milwaukee on the North-Western R. R. Fine Health Resort and Sanitarium on Lake Michigan. Beautiful environment—a mile of lake shore. For illustrated prospectus address N. A. Pennoyer, M. D.

"Sutures fit for Surgery"
DAVIS & GECK, INC.
 Brooklyn, N.Y., U.S.A.

DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. *Mfrs. of* **Fine Pharmaceuticals and Hypodermic Tablets**
 215-217-219 W. Ohio St. CHICAGO Telephone North 1704

MELLIN'S FOOD

In every step in the manufacture of Mellin's Food there is constantly in view the ultimate object of making a product of definite composition

to Accomplish a Definite Purpose.

This purpose is to furnish certain food elements which, when added to cow's milk, make it a suitable food for an infant. The food elements in Mellin's Food—carbohydrates (maltose and dextrins), proteins and salts—when dissolved in water and added to cow's milk so change the balance of nutrition in cow's milk that the resulting modification presents fat, proteins, carbohydrates and salts in the proportion needed

for the Development of Infantile Life.

The success of Mellin's Food, therefore, depends not upon any one of the food elements of which it is made up, but upon the definite composition of "Mellin's Food as a whole" as a means to enable the physician to modify cow's milk to meet the requirements of infant feeding

in a Scientific, Rational and Efficient Manner.

MELLIN'S FOOD COMPANY,

BOSTON, MASS.

DAKIN'S NEW ANTISEPTIC CHLORAZENE



This new chlorine-carrying synthetic antiseptic, para-toluene-sodium-sulphochloramide, was developed in France and England by Dr. H. D. Dakin of the Rockefeller Institute and has been tested clinically, with fine results, in the war hospitals of France and England. Many encouraging reports from prominent surgeons in this country are being received daily.

YOU SHOULD USE IT BECAUSE

CHLORAZENE is a definite chemical compound.
CHLORAZENE is less irritant than the hypochlorites.
CHLORAZENE is a most powerful antiseptic.
CHLORAZENE is virtually non-caustic and non-toxic.
CHLORAZENE is stable.
CHLORAZENE does not coagulate the albumens of the tissues.
CHLORAZENE is supplied in convenient form; tablets and powder.

Try Chlorazene in Infections, Lacerated Wounds, Ulcers, Carbuncles, Eczema, Nasal and Throat Troubles, Intrauterine Irrigation Following Labor, Douching and Urethral Irrigation, Chancroids, Gonorrhea, Burns, Surgical Work, Pyorrhea.

PACKAGES AND PRICES

CHLORAZENE is supplied in 4.6-grain tablets, in bottles of 100, at 60c. In powder; two special packages for general and hospital use; Hospital Package No. 1, to make 1 gallon of 1-per cent solution, 55c; Hospital Package No. 2, to make 5 gallons of 1-per cent solution, \$2.00. Chlorazene Surgical Cream, in 4-ounce jars, each, 60c. Prices on larger quantities on request.

The trade will be stocked, but if your druggist is not supplied we shall be glad to supply you direct, from our home office or branches.

Literature on Request

THE ABBOTT LABORATORIES

CHICAGO - NEW YORK

SEATTLE

SAN FRANCISCO

LOS ANGELES

TORONTO

BOMBAY

The Standard Laboratories

MANUFACTURING PHARMACISTS

QUANTITY, SERVICE and PRICE of drugs are necessary to success in the practice of medicine. Our products are manufactured from the purest drugs and chemicals obtainable, under the most skillful supervision, and the service is prompt. Our prices are the lowest consistent with quality.

YOUR ORDERS SOLICITED

2626-2628 Shields Avenue - CHICAGO, ILL.

Phone Calumet 6090

MANY A SUCCESSFUL PHYSICIAN

has learned from practical experience to
appreciate the therapeutic efficiency of

Gray's Glycerine Tonic Comp.

FORMULA DR. JOHN P. GRAY

Its prompt effect on the appetite, digestion
and nutrition can be confidently relied upon.

If you are not personally familiar with the remarkable
tonic properties of "Gray's" write for
special six-ounce sample.

CONSTITUENTS

Glycerine
Sherry Wine
Gentian
Taraxacum
Phosphoric Acid
Carminatives

DOSAGE—ADULTS: Two to four teaspoon-
fuls in a little water before meals three or
four times daily.

CHILDREN—One-half to one teaspoonful in
water before meals.

INDICATIONS

Auto-Intoxication
Atonic Indigestion
Anemia
Catarrhal Conditions
Malnutrition
Nervous Ailments
General Debility

THE PURDUE FREDERICK CO., 135 CHRISTOPHER STREET, NEW YORK.

In the Treatment of

Cystitis—Urethritis Pyelitis—Prostatitis—Bacilluria

HELMITOL

ACTS AS

An Efficient Urinary Antiseptic

Agreeable of Administration—Generally Well-Tolerated
by the Gastro-Intestinal and Urinary Tract.

Conveniently taken in Tablets, which readily dissolve.

Supplied in 5 gr. tablets, bottles of 25 and 100, and in powder in ounces.

Samples and Literature supplied by

THE BAYER COMPANY, Inc.
117 Hudson St., New York, N.Y.

Chicago Pasteur Institute

26th YEAR

812 NORTH DEARBORN STREET

CHICAGO

FOR THE PREVENTIVE TREATMENT OF HYDROPHOBIA

ANTONIO LAGORIO, M.D., LL.D., Medical Director

G. B. BRUNO, M.D., Associate Director

FRANK A. LAGORIO, M.D., Associate Director

Announcement—When patients are unable to come to Institute, we can furnish physicians our course of Pasteur treatment by mail, in the State of Illinois. Telephone Superior 973.

N. B.—We have no branches and the use of our name is unauthorized.



35 years

has *Tongaline* been successfully prescribed as an Anti-Rheumatic and Anti-Neuralgic. Free from the injurious effects on the stomach, or other disturbances produced by Salicylic Acid made from coal tar.

ALL THE SALICYLIC ACID IN *TONGALINE* IS MADE FROM THE NATURAL OIL

Tongaline Liquid 4-oz. Bottle, 50c 8-oz. Bottle, \$1.00 5-pint Bottle, \$5.00	Tongaline Tablets Tongaline and Lithia Tablets Tongaline and Quinine Tablets	Box, 50 Tablets, 50c Box, 100 Tablets, \$1.00
--	--	--

SAMPLES ON APPLICATION

MELLIER DRUG COMPANY, Saint Louis

SWAN-MYERS Rheumatic Bacterin

MADE from a number of strains of Streptococcus obtained by blood cultures from cases of acute and chronic Arthritis.

The most specific treatment for arthritic conditions known to modern medicine.

In 20 Mil.
Rubber
Stoppered Vials
\$3.00

Literature and complete directions with each stock package.

SWAN-MYERS COMPANY

Pharmaceutical and Biological Laboratories

INDIANAPOLIS, IND., U. S. A.

Smallpox Vaccine Mulford

In the Mulford Tube-Point Container

Is a Distinct Advance in Method of Propagation, Purification and Supplying the Virus

Since the introduction of vaccine virus by Jenner, in 1789, many efforts have been made to secure and market a satisfactory virus.

At first the vaccine virus was transferred from arm to arm. This practice was severely criticized on account of the danger of transmitting other diseases.



Tube-Point Package of Glycerinized Vaccine Virus Mulford. A sterile point and hermetically sealed container combined.

After scarification is made with the sterile glass point, break tube at etched mark and expel virus from tube with rubber bulb.

The next step was the propagating of the vaccine virus on calves.

By the Mulford method, with the process of glycerinization and strict bacteriologic control, pathogenic bacteria are excluded and a satisfactory product is secured.

The Mulford Tube-Point is the ideal container for vaccine. It combines a hermetically sealed capillary chamber, which protects the vaccine from all contamination, and a sterile scarifying point ready for use. The Mulford tube-point container is unexcelled as a safe way of furnishing vaccine virus.

The Luetin Intradermic Test

In the Mulford Special Intradermic-Test Syringe

A Simple and Accurate Method of Diagnosing Syphilis

Luetin is an extract of killed cultures of a number of strains of the Spirocheta pallida carefully sterilized and placed in sterile intradermic syringes or ampuls. A positive reaction consists of a pustule, papule or other inflammation at the site of injection.

The Luetin reaction is specific for syphilis; it occurs most constantly and intensely during the tertiary and latent stages; it is usually absent, or very mild, in the primary or secondary stages. In infants it is less marked than in adults with congenital syphilis.

Furnished in packages containing single test and five tests, in intradermic syringes. Hospital size, in ampuls containing sufficient for 50 tests (without syringes).



H. K. Mulford Company

Manufacturing and Biological Chemists
Philadelphia, U. S. A.

24723



OIL OF THUJA COMPOUND

(N. B. & CO.)

Active Constituents: Oil of Thuja, Oil of Cajuput, Oil Sesame, Oil Persica

Oil of Thuja has obtained considerable reputation as an absorbent of adenoid or lymphoid tissue, and in the treatment of hypertrophies of the mucous membrane of the nasal cavity and nasopharynx, especially in children.

Oil of Thuja Compound N. B. & CO. combines oil of Thuja with other oils having a similar therapeutic action, the preparation being non-irritant and non-toxic and designed to be applied directly to the parts affected by means of a nasal or post-nasal spray or, in the case of young children, by dropping it into the nostrils while the patient is sleeping or in a reclining position. Literature furnished to physicians upon request.

NELSON, BAKER & CO. Detroit Mich., Kansas City, Mo.

AREND-ADAMICK DOUBLE KUMYSS

AN IDEAL FOOD for all conditions of enfeebled digestive power from any cause, malnutrition in infants or the aged—a sustaining diet during the course of acute infectious diseases and gastro-intestinal disorders
EASILY ASSIMILATED and contains the elements essential for the nourishment of the organism.
A VALUABLE NUTRIENT in Typhoid, Enteritis, Marasmus, Acute fevers, Gastric Ulcer, Anemia, Vomiting of Pregnancy, Asthenic fevers and during Convalescence.

Its taste is pleasantly acidulous—its enticing flavor is unusually acceptable to the capricious appetite of the sick—it may be used for days as an exclusive diet.

Booklet giving instructions and interesting clinical report, also price list, free on request.

A. AREND DRUG COMPANY

Manufacturing Chemists

182 West Madison Street, Chicago

When You Want

to use a hypodermic tablet you want a *soluble* one—not a semi- or slowly soluble one—that may and probably will block up the only aseptic needle you have with you, and you mayhap blocks—or miles—from your office and the drugstore is closed up for the night.

You Never Run That Risk

with *really soluble* hypodermics—ours, for instance. And ours cost no more per tablet than “the other kind”; in fact, cost less when you figure in your own chagrin, the bystanders’ and patient’s caustic comments, and the price of the “blocked” needle.

Most druggists can and do supply the *soluble* hypodermics of

SHARP & DOHME

The Hypodermic Tablet People Since 1882

Rejuvenation of Creosote

VALUE OF CREOSOTE

The value of creosote has long been known. Many authorities might be quoted, but the following will suffice:

Shoemaker (Materia Medica and Therapeutics, page 409), says: "In the treatment of tuberculosis Creosote is, according to Jacobi, the most valuable drug which we possess."

Potter (Materia Medica and Therapeutics, page 253), says: "In pulmonary tuberculosis, when well borne by the stomach and continued over a long period of time, it has probably proved more efficient than any other remedy."

OBJECTIONS TO CREOSOTE

The objections to creosote have been so great as to prevent its employment to considerable extent. Its administration, as one writer states, has been hampered by the acrid taste and by the nausea and vomiting too readily introduced in many with any other than small doses.

OBJECTIONS OVERCOME

When creosote is chemically combined with calcium, as in Calcreose, the objections are very largely overcome and it is found that large doses may be given over a long period of time without difficulty.

FORMULA OF CALCREOSE

Calcreose is a reddish-brown granular powder, which contains fifty per cent creosote chemically combined with calcium.

In the process of manufacture 50 pounds of U. S. P. beechwood creosote is used in making 100 pounds of Calcreose.

Calcreose Powder Per Pound, \$3.00
Prepared by adding to one gallon of water.

Calcreose Tablets, coated brown; representing 4 grs.
100, 35c; 500, \$1.55; 1,000, \$3.00

Calcreose No. 2 Tablets, coated yellow; Calcreose, 4 grs.;
Iron, reduced, ½ gr.; Arsenic Trioxide, 1-150 gr.; Strychnine, 1-150 gr. 100, 40c; 500, \$1.70; 1,000, \$3.25

Drysdale Aperient Tablets

Formula: Rhubarb 1¼ gr., aloes 1¼ gr.,
ipecac 5/12 gr., nux vomica ½ gr.

The demand for laxatives is universal. NEW products are constantly appearing, yet it is doubtful if many are equal to the OLD Drysdale formula which we redeemed a few years ago.

The Editor of The Medical World, said of this formula: "No Cathartic will cure constipation. But this tonic laxative will come as near to it as anything the Editor has ever discovered. A cathartic leaves the musculature of the intestine debilitated and the patient is worse than previous to ingesting the cathartic; this formula is not in any sense a cathartic, and tones up the intestine so that the patient is practically better after taking it, even through long periods."

THE MALTBIE CHEMICAL CO. NEWARK, N. J.

THERAPEUTICS OF CALCREOSE

We have issued a booklet under the title: "Therapeutics of Calcreose," which we are pleased to mail to physicians upon request. In this booklet we quote authorities upon the value of both creosote and calcium and the advantages of a combination of the two. We also include reprints of articles published by physicians in well known medical journals in which successful results from the use of Calcreose are reported. These reports refer particularly to its use in tuberculosis.

SPECIAL OFFER TO PHYSICIANS

Since it is usually necessary to give Calcreose in large doses over a long period of time, especially in tuberculosis, samples are insufficient to test it thoroughly. While we supply samples, we urge physicians to order sufficient Calcreose to give it a thorough test.

In order that physicians may do this without risk we will send it ON APPROVAL. If results are satisfactory you will be glad to pay for it; if not satisfactory, we will not let you pay for it.

Thousands of physicians have ordered Calcreose on approval and are glad they did, for they have found they could safely administer large doses, and in consequence, they have been getting splendid results—especially in throat and lung diseases.

Your greatest ambition is to cure your patients. You may be skeptical regarding the value of Calcreose, but you will admit we offer some very strong evidence. Can you afford, under the circumstances, NOT to give Calcreose a trial?

Needless to say, if we did not think the trial would result favorably, and that you would continue to prescribe Calcreose, we would not make the offer.

ORDER HERE

THE MALTBIE CHEMICAL CO.,
Newark, N. J.

I. M. J. 117

• Please send me your booklet "Therapeutics of Calcreose," FREE. Also send prepaid and on approval (draw pen through items not wanted.)

1 Lb. Calcreose Powder \$3.00
500 Calcreose Tablets 1.55
200 Calcreose No. 2 Tablets80
1000 Drysdale's Aperient Tablets 1.25

I will remit in 60 days for all I find satisfactory. Nothing to be returned, nothing to be paid, if results are not satisfactory.

Name M. D.

Address

Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



Main College Building and Willard Hospital

**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant.
The Faculty consists of men who have distinguished themselves as medical educators.
The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction.
The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

**A Post-Graduate School for Prac-
titioners of Medicine**

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

Home Training In Nursing



We offer a thorough extension course to beginners and also to practical nurses wishing to perfect themselves in the theory and science of nursing.

There is in every community a demand for competent nurses — women physically qualified and possessing natural ability, who for various reasons cannot leave home to get their training. Through the aid of the very thorough system of instruction used by this school for a period of sixteen years, we have trained hundreds of women who have "made good" as practical nurses. In fact our graduates adapt themselves to the inconveniences of private nursing more readily than the hospital-trained nurse. They are loyal to the home doctor, whose co-operation has made their success possible.

Reputable physicians are invited to investigate our methods and co-operate with us by sending the names of earnest women who in their estimation would make desirable applicants.

Tuition fees very reasonable—small payment plan. Write for the Sixteenth Annual Announcement. Address

**Karen Esmann, Registrar
CHICAGO SCHOOL OF NURSING
116 S. Michigan Blvd., Chicago, Ill.**

Loyola University

School of Medicine

BENNETT MEDICAL COLLEGE

OFFERS a Five Year Course in Modern Scientific Medicine leading to the M. D. Degree, and a Six Year Course leading to the B. Sc. M. D. Degree. ¶ Individual instructions in large well equipped laboratories, and in fifteen metropolitan hospitals and dispensaries. ¶ Internships available for all graduates. ¶ Many opportunities in city for self help.

WRITE FOR CATALOG AND HOSPITAL FOLDER

1360 West Fulton Street

CHICAGO

Victor Model
"Universal"



THE first consideration in the selection of your x-ray equipment is the machine itself—its dependability. The service you receive goes with that dependability.

The name Victor stands squarely behind the service you expect—the service you can depend upon.

Give us an idea as to the scope of your work (without any obligation on your part) and let us suggest the particular type of apparatus best suited for your needs.

There's a Victor direct representative within a few hours ride from your office—if you need him.

Descriptive literature sent upon request.

VICTOR ELECTRIC CORPORATION

Chicago

New York

Cambridge

Address all inquiries to 236 So. Robey Street, Chicago

INDEX TO ADVERTISERS

Abbott Laboratories	7
A. Arend Drug Co.	27
Bayer Company	8
Bellevue Sanitarium	22
Beverly Farm School	24
Chicago College of Medicine and Surgery	29
Chicago Eye, Nose & Throat College	29
Chicago Fresh Air Hospital	20
Chicago Laboratory	36
Chicago Maternity Hospital	29
Chicago Pasteur Institute	9
Chicago School of Nursing	29
Cincinnati Sanitarium	24
College of Medicine, Univ. of Ill.	34
Cocroft, Susanna	12
Columbus Medical Laboratory	34
Crittenton, Chas. N., Co.	21
Edward Sanatorium	19
Fellows Medical Mfg. Co.	23
Fletcher's Sanatorium	12
Gradwohl Biological Laboratories	2
Horlick's Malted Milk Co.	26
Illinois Nurses Registry	22
Kenilworth Sanitarium	2
Laboratory of Pathology and Bacteriology	13
Lambert Pharmaceutical Company	35
Lederle Antitoxin Laboratory	28
Maltbie Chemical Company	11
Medical Protective Co.	4
Mead, Johnson & Co.	9
Mellier Drug Co.	15
Mennen	6
Mellin's Food Co.	23
Milwaukee Sanitarium	19
McLain Orthopedic Sanitarium	26
Mueller & Co., V.	

Mulford, H. K., & Co.	10
Murphey Sanatorium	19
Nelson, Baker & Co.	27
Norbury Sanitarium	21
Oconomowoc Health Resort	21
Ottawa Tuberculosis Colony	20
Parke, Davis & Co.	18
Pennoyer Sanitarium	6
Peoria Mud Baths	24
Peoria Sanatorium	25
Petty & Wallace's Sanitarium	25
Phillips Co., Chas. H.	32
Physicians' Radium Association	13
Pine Sanatorium	34
Pitman-Moore Co.	4
Pottenger Sanatorium	20
Purdue, Frederick, Co.	8
Pure Gluten Food Co.	5
Quaker Oats Co.	5, 33
Radium Institute	36
Ransom Sanitarium	23
Saunders Co., W. B.	front cover
Searle & Co., G. D.	6
Sharp & Dohme	27
Sherman, G. H., M. D.	5
Standard Laboratories	7
Standard Oil Co.	3
Storm, Katherine L., M. D.	11
Swan-Myers Co.	9
Tilden Co., The	6
Victor Electric Co.	30
Wander, Dr. A.	16
Waukesha Moor (Mud) Bath Co.	24
Waukesha Springs Sanitarium	22
Weirick's Sanitarium	25
Western Building Products Co.	26

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.	11
---------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.	3
-----------------------	---

FOOD

Arend-Adamick Koumyss	27
Horlick's Malted Milk Co.	2
Mead, Johnson & Co.	6
Mellin's Food Co.	6
Pure Gluten Food Co.	5
Quaker Oats	5, 33
Wander's Ovaltine	16

HOSPITAL

Chicago Fresh Air Hospital	20
Chicago Maternity Hospital	29

INVESTMENTS AND INSURANCE

Medical Protective Co.	11
-----------------------------	----

LABORATORY

Abbott Laboratories	7
Chicago Laboratory	36
Columbus Medical Laboratory	12
Gradwohl Biological Laboratories	12
Laboratory of Pathology and Bacteriology	2
Standard Laboratories	7
Swan-Myers Co.	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.	front cover
--------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery	29
Chicago Eye, Ear, Nose and Throat College	29
College of Medicine, Univ. of Ill.	34

MUD BATHS

Peoria Mud Baths	24
Waukesha Moor (Mud) Bath Co.	24

NURSES

Chicago School of Nursing	29
Illinois Nurses Registry	26

PHARMACEUTICALS

Abbott Laboratories	7
Bayer Company	8
Crittenton, Chas. N., Co.	34
Fellows Medical Mfg. Co.	19
Kenilworth Sanitarium	22
Lederle Antitoxin Laboratory	35
Lambert Pharmacal Company	13
Maltbie Chemical Company	28
Mead, Johnson & Co.	4
Mellier Drug Co.	9
Mennen	15
Mulford, H. K., & Co.	10
Nelson, Baker & Co.	27
Parke, Davis & Co.	18
Phillips Co., Chas. H.	32
Pitman-Moore Co.	4
Purdue, Frederick, Co.	8
Sherman's Bacterins	5
Searle & Co., G. D.	6
Sharp & Dohme	27
Swan-Myers Co.	9
Tilden Co., The	6

SANATORIA & SANITARIA

Bellevue Sanitarium	22
Cincinnati Sanitarium	24
Edward Sanatorium	21
Fletcher's Sanatorium	23
Kenilworth Sanitarium	22
Norbury Sanitarium	21
McLain Orthopedic Sanitarium	19
Milwaukee Sanitarium	23
Murphey Sanatorium	19
Oconomowoc Health Resort	21
Ottawa Tuberculosis Colony	20
Pennoyer Sanitarium	6
Peoria Sanitarium	25
Petty & Wallace's Sanitarium	25
Pine Sanatorium	34
Pottenger Sanatorium	20
Radium Institute	36
Ransom Sanitarium	23
Waukesha Springs Sanitarium	22
Weirick's Sanitarium	25

SURGICAL INSTRUMENTS

Mueller & Co., V.	26
Victor Electric Co.	30

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and Invalid feeding.

Phillips' Phospho-Muriate of Quinine Compound NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.
NEW YORK LONDON

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

Matters Medical Pertaining to Marriage, or the Physician as An Educator. A. J. Butner, M. D., Harrisburg, Ill.	247
Andrew Vesalius, Founder of Modern Anatomy. Chas. B. Johnson, M. D., Champaign, Ill.	253
A Few Minor Ailments Potentially Important. David S. Booth, M. D., St. Louis, Mo.	260
The Etiology and Diagnosis of Acute Endocarditis in Children. G. H. Withers, M. D., Chicago.	263
Survival of Superstition as Found in the Practice of Medicine. J. M. Beveridge, M. D., Oregon, Ill.	267

EDITORIAL.

The Annual Meeting.	271
Bloomington 1917 Convention City (Two Cuts).	272
Illinois State Medical Society Program.	273
Health Sundry	275
Status of House Bill 657.	275
The Medical Practice Act.	276
A Reunion of the Medical Practice Act.	276
Medical Department of the University.	276

Chicago Material Wanted.	278
Attention, P. & S., U. of I.	278
Notice to County Secretaries.	278
Tri-State District Medical Society.	278
National Investigation Bureau.	279
Medical Officers' Reserve Corps.	279

CORRESPONDENCE.

War Department	280
---------------------	-----

SOCIETY PROCEEDINGS.

Cook County:	
Chicago Medical Society	280
Chicago Ophthalmological Society	282
Chicago Roentgen Society	285
Iroquois-Ford County	286
Madison County	286
Personals	286
News	287
Marriages	288
Deaths	288
Book Notes	289

COUNTY SOCIETIES—Continued

Pope County	
J. A. Fisher, Pres.....	Brownfield
L. S. Barger, Secy.....	Golconda
Pulaski County	
J. F. Hagan, Pres.....	Mound City
W. R. Wessenberg, Secy.....	Mound City
Randolph County	
Wm. R. McKenzie, Pres.....	Chester
John P. Grimes, Secy.-Treas.....	Menard
Richland County	
A. T. Telford, Pres.....	Olney
E. H. Horner, Secy.....	Olney
Rock Island County	
Geo. A. Wiggins.....	Milan
A. E. Williams, Secy.....	Rock Island
St. Clair County	
J. H. Fulgham, Pres.....	E. St. Louis
A. E. Hansing, Secy.....	Belleville
Saline County	
M. D. Empson, Pres.....	Galatia
R. B. Nyberg, Secy.....	Harrisburg
Sangamon County	
Arthur E. Prince, Pres.....	Springfield
H. B. Henkel, Secy.....	Springfield
Schuyler County	
A. W. Ball, Pres.....	Rushville
J. C. Steiner, Secy.....	Rushville
Scott County	
J. W. Eckman, Pres.....	Winchester
H. H. Fletcher, Secy.....	Winchester
Shelby County	
F. A. Martin, Pres.....	Tower Hill
Frank P. Auld, Secy.....	Shelbyville
Stark County	
James R. Holgate, Pres.....	Wyoming
Clyde Bernfeld, Secy.....	Toulon
Stephenson County	
N. C. Phillips, Pres.....	Freeport
D. G. Smith, Secy.....	Freeport
Tazewell County	
H. L. Yoder.....	Morton
F. C. Gale, Secy.....	Pekin
Union County	
S. G. Martin, Pres.....	Anna
E. V. Hale, Secy.....	Anna
Vermillion County	
J. M. Morton, Pres.....	Ridge Farm
Solomon Jones, Secy.....	Danville
Wabash County	
P. G. Manley, Pres.....	Mt. Carmel
A. A. Aukerbrandt, Secy.....	Mt. Carmel
Warren County	
Philo B. Conant, Pres.....	Roseville
H. M. Camp, Secy.....	Monmouth
Washington County	
R. Jack, Pres.....	Okawville
H. Schmidt, Secy.....	Addieville
Wayne County	
T. J. Hilliard, Pres.....	Fairfield
Ostella F. Blakely, Secy.....	Fairfield
White County	
C. B. Staley, Pres.....	Enfield
John Niess, Secy.....	Carmi
Whiteside County	
W. H. Durkee, Pres.....	Fulton
H. N. Schmaling, Secy.....	Fulton
Will County	
Marion K. Bowles, Pres.....	Joliet
L. J. Lennon, Secy.....	Joliet
Williamson County	
J. G. Parmley, Pres.....	Marion
H. A. Felts, Secy.....	Marion
Winnebago County	
Wm. E. Park, Pres.....	Rockford
C. M. Ranseen, Secy.-Treas.....	Rockford
Woodford County	
W. C. Cotton, Pres.....	Benson
H. N. Barth, Secy.....	Metamora

Puffed What
In Milk

Why Every Atom Feeds

Puffed Wheat and Rice are whole grains steam exploded.

A separate explosion occurs in each food cell. Over 100 million occur in each kernel. So every granule is blasted.

The result is easy, complete digestion. And the grains are food confections. They are airy, flaky, thin and nut-like. Whole-grain bubbles, eight times normal size.

Prof. A. P. Anderson is the inventor. His object was to fit grains for food as they never were fitted before. And that is the result.

There are many cases where Puffed Grain foods will best meet your requirements.

The Quaker Oats Company

Chicago

(1588)

Puffed Wheat

Puffed Rice

and Corn Puffs

Each 15c Except in Far West

Hydroleine



Made from pure cod-liver oil emulsified after a scientific formula by approved processes.

The need of many children for cod-liver oil has been met with marked success by Hydroleine. They take it willingly; they—as well as adults—like its distinctive nutty flavor. Hydroleine is also exceptionally digestible. While its scope of usefulness is widened by its palatability and digestibility, it is always notably dependable.

Sold by druggists.

THE CHARLES N. CRITTENTON CO.
115 Fulton St., New York

Sample will be sent to physicians on request.

WANTED, FOR SALE, AND RENT DEPARTMENT

Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

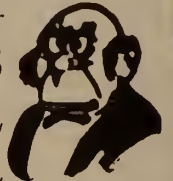
DRUG AND LIQUOR HABITS—SANITARIUM

established eighteen years. No suffering, no danger, close medical care, good nursing. Pleasant surroundings, quick and absolutely satisfactory results. Ralph Sanitarium, 529 Highland Avenue, Kansas City, Mo.

I AM SORRY I
did NOT advertise

—in the—

ILLINOIS
MEDICAL
JOURNAL



Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. No Suffering. Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
Local and Long Distance Telephone, Calumet 4543



Resident Physician
James H. Appleman, M. D.
CONSULTANTS

Surgeon
Gustav M. Blech, M. D.
104 South Michigan Ave.
Genito-Urinary

Frank Wieland, M. D.
122 South Michigan Ave.

Internist
Walter B. Metcalf, M. D.
25 East Washington St.

Electro-Therapy
Emil H. Grubbe, M. D.
130 North State Street

Throat, Nose and Ear
Richard H. Street, M. D.
25 East Washington St.

Pathologist
W. Henry Wilson, M. D.
3129 Rhodes Ave.

Oculist
Carleton A. Harkness, M. D.
29 East Madison St.

LEDERLE'S POLLEN VACCINE

In the Prophylaxis and Treatment of

HAY-FEVER

In 1915, LEDERLE'S POLLEN VACCINE was used by over 600 physicians for the prophylaxis and treatment of hay-fever. A clinical history blank was submitted to each physician and the results of the collected data are as follows:

1. Favorable results followed as a *prophylactic* against hay-fever in 83 *per cent* of the cases.
2. In the *treatment* of hay-fever favorable results followed in 89 *per cent* of the cases.
3. Marked asthmatic symptoms were associated with 55 per cent of the cases. The symptoms were relieved in 84.2 per cent of these cases.

During 1916, LEDERLE'S POLLEN VACCINE was employed by over 1,500 physicians with the following results:

1. Favorable results followed as a *prophylactic* in 80 *per cent* of the cases.
2. In the *treatment* of hay-fever favorable results were obtained in 91.7 *per cent* of the cases.
3. Marked asthmatic symptoms were associated with 53 per cent of the cases. These symptoms were successfully relieved in 78.5 per cent of the cases.

LEDERLE'S POLLEN VACCINE was used with favorable results in 40 states of the Union, from Maine to California, and as far away as Porto Rico.

The above results in the prophylaxis of hay-fever are based on the use of LEDERLE'S POLLEN VACCINE according to our original recommendation of 15 doses for the complete treatment.

Literature will be sent to any physician upon request

LEDERLE ANTITOXIN LABORATORIES
SCHIEFFELIN & CO., Distributors **NEW YORK**

THE RADIUM INSTITUTE

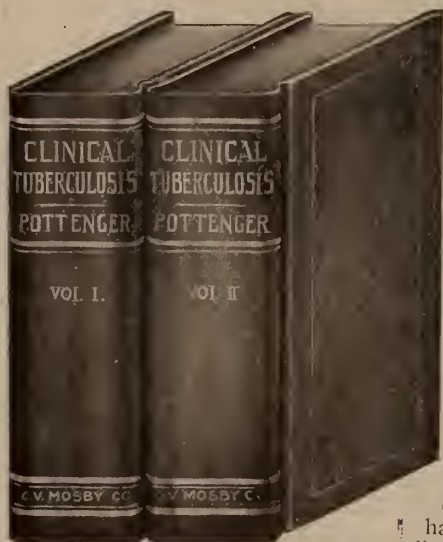
1604 Mallers Building, 59 East Madison Street
Corner Wabash Avenue, Telephone Randolph 5794

CHICAGO

DR. FRANK E. SIMPSON, *Director*

Treatment of Malignant and Benign Growths with Radium. Post-Operative Prophylactic Radiations. Applicators for all purposes, including many of Special Design. We desire to co-operate and confer with Surgeons wishing to use Radium in inoperable cases.

COUNCIL: DR. F. A. BESLEY, DR. E. C. DUDLEY, DR. A. R. EDWARDS,
DR. O. T. FREER, DR. M. HERZOG, DR. L. E. SCHMIDT, DR. G. F. SUKER.



CLINICAL TUBERCULOSIS

PATHOLOGICAL: ANATOMY, PATHOLOGICAL PHYSIOLOGY, DIAGNOSIS, PROGNOSIS, COMPLICATIONS AND TREATMENT

By FRANCIS M. POTTENGER, A. M., M. D., LL. D.

Medical Director, Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California; Professor of Diseases of the Chest, College of Physicians and Surgeons, Medical Department, University of Southern California, Los Angeles, California.

In two volumes of 1,400 pages, with original engravings, including photographs, line drawings, charts, color plates, etc. Sold only in sets. Price, per volume, \$6.00.

A Monumental Work on Tuberculosis


This is not only a book for specialists on tuberculosis, but is a practical treatise on diagnosis of the chest and in fact a study of the human being who happens to have tuberculosis. It contains a broad discussion of the principles of internal medicine.

The first few chapters dealing with infections, their relation to childhood and childhood tuberculosis, particularly when one takes into consideration that all the methods of treatment are discussed from their physiological action, telling the physician what each will do and will not do, should make it worth while to all pediatricians.

The chapter on laboratory methods is an advance on all things written and should make it necessary that this be in the hands of all people who are trying to do accurate diagnostic work in tuberculosis.

It is not a book alone for specialists in tuberculosis, but should be in the hands of general men because of its being on general medicine. *Sign the attached coupon and mail today.*

C. V. MOSBY CO.—Medical Publishers—ST. LOUIS

 **Send for Complete Catalog of Medical Publications**

Ill.
Med. Jour.

C. V. MOSBY
COMPANY
St. Louis.

Gentlemen: Please send me one set (2 vols.) Pottenger's "Clinical Tuberculosis," for which I enclose my check for \$12.00, or you may charge to my account.

Name

Street

Town..... State.....

Mention ILLINOIS MEDICAL JOURNAL when writing to advertisers

Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 5

CHICAGO, MAY, 1917

\$2.00 a Year

CONTENTS

ORIGINAL ARTICLES		PAGE		PAGE	
Post-Operative Volvulus.	C. A. Buswell, M. D., Chicago	291	Foci of Infection About the Teeth.	W. T. Clark, M. D., Fl. Atkinson, Wis.	312
Post-Operative Sequelae and Their Avoidance.	George de Tarnowski, M. D., Chicago	293	On the Clinical Aspect of Cardiac Incompetence.	George Richler, M. D., St. Louis, Mo.	315
Local Anesthesia.	Frederick G. Dyas, M. D., Chicago	295	Home Talent.	George K. Wilson, M. D., Streator, Ill.	320
Orthopedic Treatment of Poliomyelitis Anterior.	Edwin W. Ryerson, M. D., Chicago	299	Functions and Problems of a Medical School Inspector.	Dudley W. Day, M. D., Rockford, Ill.	322
The Medical Aspect of Acute Poliomyelitis.	Frank D. Francis, M. D., Chicago	301	The Use of Massage and Exercises in the Treatment of Flat-Foot.	Hugo Ad. Oldenberg, Chicago	324
Indications for Decompression.	William H. Perry, M. D., Sterling, Ill.	309	Amaraotic Family Idiocy (Tay's-Sachs' Disease).	Edward F. Leonard, M. D., Chicago	327

(Continued on page 32)

(Continued on page 32)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

Kolmer's Infection, Immunity, Specific Therapy

FOR PRACTITIONER AND
LABORATORY WORKER

Dr. Kolmer's book gives you a full account of infection and immunity, and the application of this knowledge in the specific diagnosis, prevention, and treatment of disease. This work is also a very complete laboratory guide. It is not a book for the laboratory worker alone—not by any means. While the laboratory worker will find in it everything he could possibly want to know about these subjects, the book was planned particularly for the man in general practice—the general practitioner. You, therefore, will find here not only the theories, the principles of infection and immunity, the technic of making the various tests and reactions (illustrated in colors), but also—and specially—the significance of the various reactions, their value in diagnosis, their practical application in your daily work. Then the *Specific Therapy* section: You get here the exact technic, step by step, of making *serums and autogenous vaccines* and their actual use in diagnosis and treatment. You get definite directions for injecting vaccines, serums, salvarsan, neosalvarsan; definite directions for the tuberculin tests, luetin, mallein, and similar reactions. There is a great deal of instructive material on vaccine therapy in typhoid fever, and on antityphoid vaccination. The last section is devoted to *laboratory experiments*.

Octavo of 900 pages, with 143 illustrations, 43 in colors by Erwin F. Faber. By JOHN A. KOLMER, M.D., Dr. P.H., Assistant Professor of Experimental Pathology, University of Pennsylvania. Cloth, \$6.00 net; Half Morocco, \$7.50 net.

W. B. SAUNDERS COMPANY Philadelphia and London

This Issue, 6,550 Copies

THE UNIFORM QUALITY, PURITY OF INGREDIENTS AND HIGH STANDARD OF

Horlick's the Original Malted Milk



Which have been maintained for over a third of a century, make it particularly desirable for infant feeding.

Owing to its high caloric value, nourishing and refreshing properties, and perfect digestibility, it has received the favorable consideration of the profession as a diet in the treatment of Typhoid, Diphtheria, Pneumonia and Post operative cases.

Always Specify

“Horlick's”

and avoid substitutes

Horlick's Malted Milk Company, Racine, Wisconsin

CLINICAL LABORATORY ANALYSES

For your own reputation and the health of your patients **Absolute Accuracy** in laboratory analyses are prerequisites.

Quick Service must accompany such work.

**We Have Built Our Reputation and a Big Business on These
Ask Your Fellow Practitioners**

Accurate analyses of all secretions, excretions and body fluids

Wassermann Test-Tissue Diagnoses-Autogenous Vaccines

**LABORATORY OF
PATHOLOGY AND BACTERIOLOGY**

Dr. Maximilian Herzog

Dr. Meyer D. Moledetzky

Suite 1604-5 The Mallers Building

5 South Wabash Avenue

CHICAGO

Phones Randolph 5794-5795

Stanolind
Trade Mark Reg. U. S. Pat. Off.
Liquid Paraffin
 (Medium Heavy)
 Tasteless—Odorless—Colorless

Before Operation

Stanolind Liquid Paraffin is an ideal laxative for surgical practice.

When used in the proper dose, it thoroughly empties the alimentary canal, without producing irritation or other undesirable effects.

It is particularly valuable in intestinal surgery, because it leaves the stomach and bowels in a quiet state, and because its use is not followed by an increased tendency to constipation.

After an abdominal operation, one or two ounces of Stanolind Liquid Paraffin may be given through a tube while the patient is still under the anaesthetic, or as an emulsion, an hour or two later.

Stanolind Liquid Paraffin is essentially *bland* in its action, causing a minimum amount of irritation while in stomach or intestine. It may also in most cases be gradually reduced without apparently affecting the frequency of the evacuations.

A trial quantity with informative booklet will be sent on request.

Standard Oil Company

(Indiana)

72 W. Adams St.
 Chicago, U. S. A.



Sugar is an Extremely Important Constituent in Infant Feeding BUT

YOU MUST SELECT THE RIGHT SUGAR

A large part of the troubles of infant feeding has been shown to be due to the ingestion of milk sugar or cane sugar.

MEAD'S DEXTRI-MALTOSE

from the standpoint of DIGESTIBILITY and ASSIMILABILITY represents the properly balanced carbohydrate. Composition—Maltose 52%, Dextrin 41.7%, Sodium Chloride 2%.

Administration—1½ oz. Dextri-Maltose (2 heaping tablespoonfuls) to any milk and water mixtures suited to age and weight.

Literature and Samples on Request

Mead Johnson & Co.

Evansville, Ind.

There are many grades of crude drugs
offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch
Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY

Sherman's Bacterial Vaccines Preparations with a Record for Reliability

All the vaccines usually employed in the treatment of infectious diseases marketed in specially devised aseptic antiseptic bulk packages, insuring absolute safety in withdrawing contents.

5 c.c. for \$1.00 18 c.c. for \$3.00 Ampules, 6 in box, \$1.50

Daily Users of Vaccines use Sherman's

SHERMAN'S NEW BOOK

JUST OFF THE PRESS

Devoted to the Application of

BACTERIAL VACCINES

Explaining their therapeutic action—How, When and Where to use them.

More rapid strides have been made and more brilliant results obtained in the Field of Therapeutic Immunization than in any other branch of medicine.

This book contains over 500 pages, is cloth bound and sells for \$2.50.

WRITE FOR LITERATURE

G. H. SHERMAN, M. D.

3334 Jefferson Ave. E.

Detroit, Mich.



Bran Flakes

Hidden in Dainties

Here is a bran food which folks will continue. The bran is hidden in luscious flakes of wheat.

No breakfast dainty is better liked than Pettijohn's. Yet it contains 25 per cent of flake bran.

With Pettijohn's Flour, it enables a constant bran diet, varied and appetizing.

This has become the favorite bran food, because it is natural, well-liked and efficient.

You will find it better than clear bran, better than any bran sweet.

You will find it an easy, welcome way to establish the bran habit.

Pettijohn's

Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company

Chicago

(1590)

SPECIFIC INFECTIONS
ELIXIR IODO-BROMIDE OF CALCIUM COMPOUND
 With or Without Mercury Bichloride

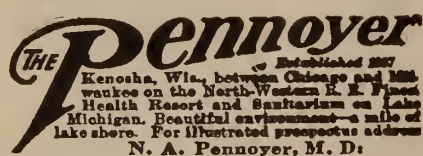
Free Samples to the Profession

Prepared Only By

THE TILDEN COMPANY
 Pharmacists and Chemists

NEW LEBANON, N. Y.

ST. LOUIS, MO.



DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. *Mfrs. of* **Fine Pharmaceuticals and Hypodermic Tablets**
 215-217-219 W. Ohio St. CHICAGO Telephone North 1704

Maltose and Dextrins

in the proportions as found in

Mellin's Food

may be employed successfully as the carbohydrates

In the feeding of normal infants,

In the adjustment of the diet to overcome constipation,

In conditions where a gain in weight is especially desired,

In the feeding of marasmic infants—and

As a temporary diet in diarrhea.

In other words,—proportions of Maltose and Dextrins that are adapted to the sick infant as well as the baby in health are present in Mellin's Food.

MELLIN'S FOOD COMPANY,

BOSTON, MASS.

LIQUOR HYPOPHYSIS

Pituitary Solution (ABBOTT)

Have You Tried CHLORAZENE?
(Dakin's New Antiseptic)

You Should Use It Because:

It is a definite chemical compound.
It is less irritant than the hypochlorites.
It is a most powerful antiseptic.
It is virtually non-caustic and non-toxic.
It is stable.
It does not coagulate the albumens of the tissues.
It is supplied in convenient form: tablets and powder.
Try Chlorazene in Infections, Lacerated Wounds, Ulcers, Carbuncles, Eczema, Nasal and Throat Troubles, Intrauterine Irrigation Following Labor, Douching and Urethral Irrigation, Chancre, Gonorrhea, Burns, Surgical Work, Pyorrhea.

Literature on Request

This product, which we now present to the medical profession, is manufactured with the greatest care and is free from preservatives. It is standardized according to the method of Roth, of the United States Hygienic Laboratory, and conforms to the requirements of the U. S. Pharmacopeia.

PITUITARY SOLUTION (Abbott) is of value as a stimulant of uterine contractions in delayed labor. It is a powerful heart product. Many doctors report excellent results with this product. You can depend upon it.

Tell your druggist to stock for your convenience—and specify "Abbott's" when ordering. In the meantime, if he cannot supply you, order direct or from our home office or nearest branch point.

PRICES

Per box of six 1-mil (1-Cc.) ampules.....\$1.00
Per box of six ½-mil (½-Cc.) ampules.....60

THE ABBOTT LABORATORIES
CHICAGO - NEW YORK

SEATTLE

SAN FRANCISCO

LOS ANGELES

TORONTO

BOMBAY

The Standard Laboratories

MANUFACTURING PHARMACISTS

QUALITY, SERVICE and PRICE of drugs are necessary to success in the practice of medicine. Our products are manufactured from the purest drugs and chemicals obtainable, under the most skillful supervision, and the service is prompt. Our prices are the lowest consistent with quality.

YOUR ORDERS SOLICITED

2626-2628 Shields Avenue - CHICAGO, ILL.

Phone Calumet 6090

MANY A SUCCESSFUL PHYSICIAN

has learned from practical experience to
appreciate the therapeutic efficiency of

Gray's Glycerine Tonic Comp.

FORMULA DR. JOHN P. GRAY

Its prompt effect on the appetite, digestion
and nutrition can be confidently relied upon.

If you are not personally familiar with the remarkable
tonic properties of "Gray's" write for
special six-ounce sample.

CONSTITUENTS

Glycerine
Sherry Wine
Gentian
Taraxacum
Phosphoric Acid
Carminatives

DOSAGE—ADULTS: Two to four teaspoon-
fuls in a little water before meals three or
four times daily.

CHILDREN—One-half to one teaspoonful in
water before meals.

INDICATIONS

Auto-Intoxication
Atonic Indigestion
Anemia
Catarrhal Conditions
Malnutrition
Nervous Ailments
General Debility

THE PURDUE FREDERICK CO., 135 CHRISTOPHER STREET, NEW YORK.

In the Treatment of

Cystitis—Urethritis Pyelitis—Prostatitis—Bacilluria

HELMITOL

ACTS AS

An Efficient Urinary Antiseptic

Agreeable of Administration—Generally Well-Tolerated
by the Gastro-Intestinal and Urinary Tract.

Conveniently taken in Tablets, which readily dissolve.

Supplied in 5 gr. tablets, bottles of 25 and 100, and in powder in ounces.

Samples and Literature supplied by

THE BAYER COMPANY, Inc.
117 Hudson St., New York, N.Y.

Chicago Pasteur Institute

26th YEAR

812 NORTH DEARBORN STREET

CHICAGO

FOR THE PREVENTIVE TREATMENT OF HYDROPHOBIA

ANTONIO LAGORIO, M.D., LL.D., Medical Director

G. B. BRUNO, M.D., Associate Director

FRANK A. LAGORIO, M.D., Associate Director

Announcement—When patients are unable to come to Institute, we can furnish physicians our course of Pasteur treatment by mail, in the State of Illinois. Telephone Superior 973.

N. B.—We have no branches and the use of our name is unauthorized.



35 years

for

has *Tongaline* been successfully prescribed as an Anti-Rheumatic and Anti-Neuralgic. Free from the injurious effects on the stomach, or other disturbances produced by Salicylic Acid made from coal tar.

ALL THE SALICYLIC ACID IN *TONGALINE* IS MADE FROM THE NATURAL OIL

Tongaline Liquid	(4-oz. Bottle, 50c)	Tongaline Tablets
	(8-oz. Bottle, \$1.00)	Tongaline and Lithia Tablets
	(5-pint Bottle, \$6.00)	Tongaline and Quinine Tablets

Box, 50 Tablets, 50c
Box, 100 Tablets, \$1.00

SAMPLES ON APPLICATION MELLIER DRUG COMPANY, Saint Louis

SWAN-MYERS

Rheumatic Bacterin

MADE from a number of strains of Streptococcus obtained by blood cultures from cases of acute and chronic Arthritis.

The most specific treatment for arthritic conditions known to modern medicine.

In 20 Mil.
Rubber
Stoppered Vials
\$3.00

Literature and complete directions with each stock package.

SWAN-MYERS COMPANY

Pharmaceutical and Biological Laboratories

INDIANAPOLIS, IND., U. S. A.



Hay Fever Vaccine, Spring

For the Prevention and Treatment of
Rose Colds or Spring Hay Fever

Hay Fever Vaccine Spring Mulford consists of the protein extract obtained from the pollens of timothy, rye, red-top and several other grasses—the cause of so-called rose-colds, or Spring or Summer hay fever—dissolved in physiological saline solution and accurately standardized.

The Vaccine may be used without preliminary diagnostic tests, Spring hay fever being caused mostly by the pollen from grasses.

Autumn Hay Fever is nearly always due to the pollen of ragweed.

If treatment does not give entire relief, skin tests may be made to discover possible hypersusceptibility to pollen not contained in the Vaccine.

Hay Fever Vaccine Spring is furnished in:

Packages containing 4 sterile glass syringes of graduated strengths, \$5.00
 In single syringes "D" strength, 1.50

Syringe A	contains	0.0025	mg.	extract of the pollen protein
" B	"	0.005	"	"
" C	"	0.01	"	"
" D	"	0.02	"	"

In ordering specify "Spring" or "Fall" as may be desired.

For Immunization Treatment of Hay Fever, first dose (Syringe A) should be given at least 30 days before expected attack, followed by B, C and D at five-day intervals. Syringe D strength Hay Fever Vaccine should be used at weekly intervals during the entire period of accustomed attack or until immunity is established.

There are no contraindications to the therapeutic or prophylactic use of Hay Fever Vaccine Mulford so far as known. A small percentage of patients may be hypersensitive to the protein extracts, in which case the doses may be reduced.

Full literature will be mailed upon request

H. K. MULFORD CO., Philadelphia, U. S. A.

26504

Manufacturing and Biological Chemists

OIL OF THUJA COMPOUND

(N. B. & CO.)

Active Constituents: Oil of Thuja, Oil of Cajuput, Oil Sesame, Oil Persica

Oil of Thuja has obtained considerable reputation as an absorbent of adenoid or lymphoid tissue, and in the treatment of hypertrophies of the mucous membrane of the nasal cavity and nasopharynx, especially in children.

Oil of Thuja Compound N. B. & CO. combines oil of Thuja with other oils having a similar therapeutic action, the preparation being non-irritant and non-toxic and designed to be applied directly to the parts affected by means of a nasal or post-nasal spray or, in the case of young children, by dropping it into the nostrils while the patient is sleeping or in a reclining position. Literature furnished to physicians upon request.

NELSON, BAKER & CO. Detroit Mich., Kansas City, Mo.

AREND-ADAMICK DOUBLE KUMYSS

AN IDEAL FOOD for all conditions of enfeebled digestive power from any cause, malnutrition in infants or the aged—a sustaining diet during the course of acute infectious diseases and gastro-intestinal disorders
EASILY ASSIMILATED and contains the elements essential for the nourishment of the organism.
A VALUABLE NUTRIENT in Typhoid, Enteritis, Marasmus, Acute fevers, Gastric Ulcer, Anemia, Vomiting of Pregnancy, Asthenic fevers and during Convalescence.

Its taste is pleasantly acidulous—its enticing flavor is unusually acceptable to the capricious appetite of the sick—it may be used for days as an exclusive diet.

Booklet giving instructions and interesting clinical report, also price list, free on request.

A. AREND DRUG COMPANY

Manufacturing Chemists

182 West Madison Street, Chicago

A Good Name

—be it “professional” or “trade”—
never “just happens.”

The sterling reputations of America’s medical men, from the leaders to the rank-and-file, *were built*, step by step, by hard study and harder work.

That’s the way *our* name came to stand for “Quality;” and we’ve been more than a half-century “building” it.

SHARP & DOHME

Since 1860

“QUALITY PRODUCTS”

Calcreose

The value of creosote has long been recognized by authorities in the treatment of diseases of the throat and lungs and in gastro-intestinal infections.

The use of creosote has been neglected largely because of difficulties of administration.

Calcreose, a chemical combination of creosote and calcium (contains 50% creosote) overcomes many of the objections.

Furthermore the combination (creosote and calcium) is believed to have therapeutic properties not held by either drug alone. Calcium being quite essential in many cases, particularly tuberculosis.

Physicians are urgently requested to investigate the value of Calcreose in the treatment of

Throat and Lung Diseases

and

Gastro Intestinal Infections

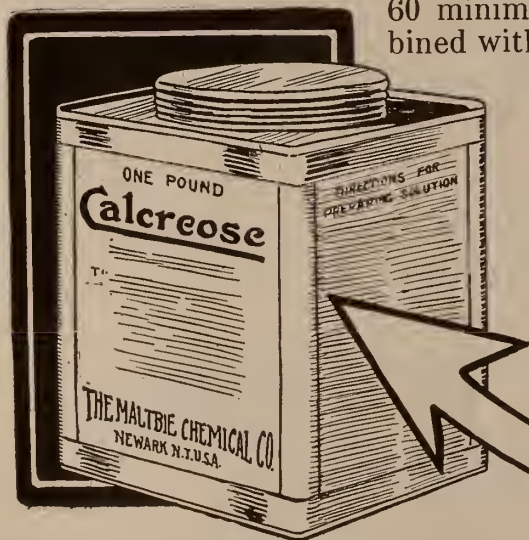
Careful and accurate clinical work demonstrates that as high as 60 minims of creosote, when combined with calcium as in calcreose, may be safely administered daily in a large per cent of cases without digestive disturbance (reports of much higher dosage have been made.)

For complete formulae and literature, address

The Maltbie Chemical Co.

NEWARK,

NEW JERSEY



Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



Main College Building and Willard Hospital

**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant. The Faculty consists of men who have distinguished themselves as medical educators. The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction. The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

**A Post-Graduate School for Prac-
titioners of Medicine**

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

Home Training In Nursing



We offer a thorough extension course to beginners and also to practical nurses wishing to perfect themselves in the theory and science of nursing.

There is in every community a demand for competent nurses — women physically qualified and possessing natural ability, who for various reasons cannot leave home to get their training. Through the aid of the very thorough system of instruction used by this school for a period of sixteen years, we have trained hundreds of women who have "made good" as practical nurses. In fact our graduates adapt themselves to the inconveniences of private nursing more readily than the hospital-trained nurse. They are loyal to the home doctor, whose co-operation has made their success possible.

Reputable physicians are invited to investigate our methods and co-operate with us by sending the names of earnest women who in their estimation would make desirable applicants.

Tuition fees very reasonable—small payment plan. Write for the Sixteenth Annual Announcement. Address

**Karen Esmann, Registrar
CHICAGO SCHOOL OF NURSING
116 S. Michigan Blvd., Chicago, Ill.**

Loyola University

School of Medicine

BENNETT MEDICAL COLLEGE

OFFERS a Five Year Course in Modern Scientific Medicine leading to the M. D. Degree, and a Six Year Course leading to the B. Sc. M. D. Degree. ¶ Individual instructions in large well equipped laboratories, and in fifteen metropolitan hospitals and dispensaries. ¶ Internships available for all graduates. ¶ Many opportunities in city for self help.

WRITE FOR CATALOG AND HOSPITAL FOLDER

1360 West Fulton Street

CHICAGO

Psycho-Physical Therapy

The busy physician often finds his time unduly taken up by patients who should be made to know that they are first aids to the physician in accomplishing their cure

Every physician recognizes the absolute value of psycho-physical therapy as an adjunct to the medicinal treatment.

It is in such cases that Miss Susanna Cocroft can be of great assistance to the physician. Being a woman she understands her sex as a man, however gifted, cannot. As a trained woman, both by study and by years of experience, she is able to combine the force of suggestion and her pupil's physical effort in exercise, deep breathing and correct poise. She thus arouses these women to help themselves. She enthuses them in building up their physical resistance and thus aids in establishing their mental equilibrium.

Miss Cocroft inspires her pupils to "hold on" in practicing her special exercises for developing physical resistance, for reducing excess flesh or in building flesh, and this persistence of the patient herself in accomplishing results aids her recovery. Each case is individual and is so studied.

Miss Cocroft is in thorough sympathy with the ethics of the medical profession and is cooperating with physicians in cases wherein physical exercises are of benefit.

Every practitioner should acquaint himself with the system of exercises ORIGINATED by Miss Cocroft. They are based on an extensive experience and a thorough anatomic and physiologic knowledge.

On request she will send you full information concerning her work. Address

SUSANNA COCROFT

624 MICHIGAN BOULEVARD

CHICAGO



INDEX TO ADVERTISERS

Abbott Laboratories	7
A. Arend Drug Co.	27
Bayer Company.....	8
Bellevue Sanitarium	22
Beverly Farm School.....	24
Carrick, G. W., Co.....	15
Chicago College of Medicine and Surgery.....	29
Chicago Eye, Nose & Throat College.....	29
Chicago Fresh Air Hospital.....	20
Chicago Laboratory	14
Chicago Maternity Hospital	29
Chicago Pasteur Institute	9
Chicago School of Nursing.....	29
Cincinnati Sanitarium	24
College of Medicine, Univ. of Ill.....	34
Cocroft, Susanna.....	30
Columbus Medical Laboratory	12
Crittenton, Chas. N., Co.....	34
Edward Sanatorium	21
Fellows Medical Mfg. Co.....	19
Fletcher's Sanatorium	23
Gradwohl Biological Laboratories.....	12
Horlick's Malted Milk Co.....	2
Illinois Nurses Registry.....	26
Kenilworth Sanitarium	22
Laboratory of Pathology and Bacteriology.....	2
Lambert Pharmaceutical Company.....	13
Lederle Antitoxin Laboratory.....	35
Loyola University School of Medicine.....	30
Maltbie Chemical Company.....	28
McIntosh, John, Co.....	11
Medical Protective Co.....	11
Mead, Johnson & Co.....	4
Mellier Drug Co.....	9
Mennen	17
Mellin's Food Co.....	6
Milwaukee Sanitarium	23
McLain Orthopedic Sanitarium.....	19

Mueller & Co., V.....	19
Mulford, H. K., & Co.....	19
Murphey Sanatorium	19
Nelson, Baker & Co.....	27
Norbury Sanitarium	21
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Parke, Davis & Co.....	18
Pennoyer Sanitarium	6
Peoria Mud Baths	24
Peoria Sanatorium	25
Petty & Wallace's Sanitarium.....	25
Phillips Co., Chas. H.....	32
Physicians' Radium Association.....	13
Pine Sanatorium	34
Pitman-Moore Co.	20
Pottenger Sanatorium	20
Purdue, Frederick, Co.....	8
Pure Gluten Food Co.....	5
Quaker Oats Co.....	5, 33
Radium Institute	36
Ransom Sanitarium	23
Riverside Sanitarium	15
Saunders Co., W. B.....	front cover
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Sherman, G. H., M. D.....	5
Standard Laboratories	7
Standard Oil Co.....	3
Storm, Katherine L., M. D.....	11
Swan-Myers Co.	9
Tilden Co., The.....	6
Victor Electric Co.....	33
Wander, Dr. A.....	16
Waukesha Moor (Mud) Bath Co.....	24
Waukesha Springs Sanitarium	22
Weirick's Sanitarium	25
Western Building Products Co.....	26

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.....	11
--------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.....	3
----------------------	---

FOOD

Arend-Adamlek Koumyss	27
Horlick's Malted Milk Co.....	2
Mead, Johnson & Co.....	6
Mellin's Food Co.....	6
Pure Gluten Food Co.....	5
Quaker Oats	5, 33
Wander's Ovaltine	16

HOSPITAL

Chicago Fresh Air Hospital	20
Chicago Maternity Hospital	29

INVESTMENTS AND INSURANCE

Medical Protective Co.....	11
----------------------------	----

LABORATORY

Abbott Laboratories	7
Chicago Laboratory.....	14
Columbus Medical Laboratory.....	12
Gradwohl Biological Laboratories.....	12
Laboratory of Pathology and Bacteriology.....	2
Standard Laboratories	7
Swan-Myers Co.	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.....	front cover
-------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery.....	29
Chicago Eye, Ear, Nose and Throat College.....	29
College of Medicine, Univ. of Ill.....	34
Loyola University School of Medicine.....	30

MUD BATHS

Peoria Mud Baths.....	24
Waukesha Moor (Mud) Bath Co.....	24

NURSES

Chicago School of Nursing.....	29
Illinois Nurses Registry.....	26

PHARMACEUTICALS

Abbott Laboratories	7
Bayer Company.....	8
Carrick, G. W., Co.....	15
Crittenton, Chas. N., Co.....	34
Fellows Medical Mfg. Co.....	19
Kenilworth Sanitarium	22
Lederle Antitoxin Laboratory.....	35
Lambert Pharmacal Company.....	13
Maltbie Chemical Company.....	28
Mead, Johnson & Co.....	4
Mellier Drug Co.....	9
Mennen	17
Mulford, H. K., & Co.....	10
Nelson, Baker & Co.....	27
Parke, Davis & Co.....	18
Phillips Co., Chas. H.....	32
Pitman-Moore Co.	4
Purdue, Frederick, Co.....	8
Sherman's Bacterins	5
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Swan-Myers Co.	9
Tilden Co., The.....	6

SANATORIA & SANITARIA

Bellevue Sanitarium	22
Cincinnati Sanitarium	24
Edward Sanatorium	21
Fletcher's Sanatorium	23
Kenilworth Sanitarium	22
Norbury Sanitarium	21
McLain Orthopedic Sanitarium.....	19
Milwaukee Sanitarium	23
Murphey Sanatorium	19
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Pennoyer Sanitarium.....	6
Peoria Sanitarium	25
Petty & Wallace's Sanitarium.....	25
Pine Sanatorium	34
Pottenger Sanatorium	20
Radium Institute	36
Ransom Sanitarium	23
Riverside Sanitarium	15
Waukesha Springs Sanitarium.....	22
Weirick's Sanitarium	25

SURGICAL INSTRUMENTS

McIntosh, John, Co.....	11
Mueller & Co., V.....	19
Victor Electric Co.....	33

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and Invalid feeding.

Phillips' Phospho-Muriate of Quinine

Compound

NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.

NEW YORK

LONDON

FOR SALE—Central Illinois, \$4,000 practice. Hustling town of 500 in good farming community. Eight-room residence, four room office, garage, all on two good corner lots. Price \$6,000. Modern improvements, good schools, churches and roads. Large territory, good fees and collections. Competition very easy. Leaving to specialize. Address E. W. B., Illinois Medical Journal.

DO YOU KNOW OF ANY CONTESTED

insurance claims? Our bureau renders its clients expert service in securing policyholders and beneficiaries holding health and accident policies satisfactory adjustment of disputed claims. Our work is conducted through the medical profession. Complete details regarding our system sent upon request to Dr. W. E. Magruder, Med. Dir., Nat. Investigation Bureau, 924 Madison Ave., Baltimore, Md. KK

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

The Treatment of Tabetic Ataxia by Re-educational Exercises. Lewis J. Pollock, M. D., Chicago.....	331
A Modern Hospital for the Insane from the Standpoint of Medical Service, Research and Educational Work. H. Douglas Singer, M. D., Kankakee, Ill.....	334
Recurrent Streptococcus Viridans Endocarditis with Unusual Meningeal Complications. Walter H. Nadler, M. D., Chicago, and Richard F. Herndon, M. D., Springfield, Ill.....	339
The Crippled Child. Frederick Cleveland Test, M. D., Chicago	340
EDITORIAL	
Welcome	345
The Bloomington Meeting.....	345
Eye, Ear, Nose and Throat Section.....	345
Program of Annual Meeting.....	346
Medical Men for the Army.....	350
Medical Men for the Navy.....	350
American Proctological Society.....	350
The Alienists and Neurologists.....	350
Notice—Rush Alumni	351

CORRESPONDENCE

A Question of Importance.....	351
-------------------------------	-----

PUBLIC HEALTH

The New State Department of Public Health.....	353
Illinois Public Health and Welfare Association.....	354
Officers of State and County Societies.....	355

AUTO SPARKS AND KICKS

Storage Batteries	357
-------------------------	-----

SOCIETY PROCEEDINGS

Cook County:	
Chicago Medical Society.....	358
Chicago Ophthalmological Society.....	360
Macoupin County.....	363
Madison County	364
Montgomery County.....	364
Ogle County.....	364
Winnebago County.....	364
Personals	365
News Notes.....	365
Deaths	366
Marriages	366



—by the President of the
Victor Electric
Corporation:

The ancient custom, that the purchaser must look out for himself lest the goods he buys are not as represented, is not the best spirit in to-day's American merchandising.

It is the desire of this new corporation to give concrete expression to the best thoughts and ideals of American merchandising by maintaining the highest possible standard of quality in product and in service to its customers. ■ ■ ■

The first rule written for the guidance of the Publicity Department reads as follows:

"All advertisements shall be absolutely truthful, both as to statements of facts and suggested ideas implied by copy." ■ ■

This corporation is not posing as an ideal; but wishes to be understood as *striving* for ideals. The goods and the service are believed to be the best of today. There is being put into them more than mere expenditure of money—enthusiasm and loyalty to ideals. There is being wrought into the goods that which insures to the buyer articles even better than they are represented to be—that which evidences a sincerity of purpose.

C. F. Samme

Extra-Fine Oat Food

Some folks still think that the best oats are imported.

But all the world over Quaker Oats dominates. Even in the British Isles—the home of Scotch and Irish oats—Quaker is the largest-selling brand.

All because we use the queen grains only. The puny, starved grains are omitted. We get but ten pounds of Quaker Oats from a bushel.

That's the secret of the wondrous flavor which holds millions to Quaker Oats. And that's the reason everyone should get them.

They cost no extra price.

10c and 25c Per Package

Except in Distant Sections

Quaker Oats

The Flavoury Flakes

(1594)

Hydroleine

**An ethical emulsion of
cod-liver oil without
medicinal admixture.**

The manner in which the purest and freshest cod-liver oil is emulsified in Hydroleine, makes it easily digestible. Furthermore, Hydroleine does not offend the taste. Its nutty and distinctive flavor is liked by the most delicate palate, and children take it willingly.

In practice it is markedly utilizable, and is reliably stable. It is effective as a food-fat and possesses superior characteristics.

**In Long-continued Professional
Use Hydroleine Has Proved
Its Dependability**

THE CHARLES N. CRITTENTON CO.
115 Fulton Street, New York

Sold by druggists

Sample sent to physicians on request.

WANTED, FOR SALE, AND RENT DEPARTMENT

Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

DRUG AND LIQUOR HABITS—SANITARIUM
established eighteen years. No suffering, no danger, close medical care, good nursing. Pleasant surroundings, quick and absolutely satisfactory results. Ralph Sanitarium, 529 Highland Avenue, Kansas City, Mo.

THE COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS



Minimum admission requirements to the Freshman year, fifteen units of work from an accredited high school and in addition two years in a recognized university or college involving at least one year in college physics, biology, chemistry and six college hours in French or German. For course of Medical study, four years are required. Eligible students will receive the degree of B. S. at the completion of the Sophomore year. Well equipped laboratories and good hospital facilities.

Excellent location in the heart of Chicago's great medical center. Collegiate year begins September 28th, 1916. For full information concerning course of study, fees, etc., address Secretary, Box 51 COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS Congress and Honor Streets Chicago, Illinois



Resident Physician
James H. Appleman, M. D.
CONSULTANTS

Surgeon
Gustav M. Blech, M. D.
104 South Michigan Ave.
Genito-Urinary

Frank Wieland, M. D.
122 South Michigan Ave.

Internist
Walter B. Metcalf, M. D.
25 East Washington St.

Electro-Therapy
Emil H. Grubbe, M. D.
130 North State Street

Throat, Nose and Ear
Richard H. Street, M. D.
25 East Washington St.

Pathologist
W. Henry Wilson, M. D.
3129 Rhodes Ave.

Oculist
Carleton A. Harkness, M. D.
29 East Madison St.

Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. No Suffering. Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
Local and Long Distance Telephone, Calumet 4543

LEDERLE'S POLLEN VACCINE

In the Prophylaxis and Treatment of

HAY-FEVER

In 1915, LEDERLE'S POLLEN VACCINE was used by over 600 physicians for the prophylaxis and treatment of hay-fever. A clinical history blank was submitted to each physician and the results of the collected data are as follows:

1. Favorable results followed as a *prophylactic* against hay-fever in 83 *per cent* of the cases.
2. In the *treatment* of hay-fever favorable results followed in 89 *per cent* of the cases.
3. Marked asthmatic symptoms were associated with 55 per cent of the cases. The symptoms were relieved in 84.2 per cent of these cases.

During 1916, LEDERLE'S POLLEN VACCINE was employed by over 1,500 physicians with the following results:

1. Favorable results followed as a *prophylactic* in 80 *per cent* of the cases.
2. In the *treatment* of hay-fever favorable results were obtained in 91.7 *per cent* of the cases.
3. Marked asthmatic symptoms were associated with 53 per cent of the cases. These symptoms were successfully relieved in 78.5 per cent of the cases.

LEDERLE'S POLLEN VACCINE was used with favorable results in 40 states of the Union, from Maine to California, and as far away as Porto Rico.

The above results in the prophylaxis of hay-fever are based on the use of LEDERLE'S POLLEN VACCINE according to our original recommendation of 15 doses for the complete treatment.

Literature will be sent to any physician upon request

LEDERLE ANTITOXIN LABORATORIES
SCHIEFFELIN & CO., Distributors **NEW YORK**

THE RADIUM INSTITUTE

1604 Mallery Building, 59 East Madison Street
Corner Wabash Avenue, Telephone Randolph 5794

CHICAGO

DR. FRANK E. SIMPSON, *Director*

Treatment of Malignant and Benign Growths with Radium. Post-Operative Prophylactic Radiations. Applicators for all purposes, including many of Special Design. We desire to co-operate and confer with Surgeons wishing to use Radium in inoperable cases.

COUNCIL: DR. F. A. BESLEY, DR. E. C. DUDLEY, DR. A. R. EDWARDS,
DR. O. T. FREER, DR. M. HERZOG, DR. L. E. SCHMIDT, DR. G. F. SUKER.



The Newer Methods of Blood and Urine Chemistry

(Just Published)

By R. B. H. GRADWOHL, M.D., Director of The Pasteur Institute of St. Louis and The Gradwohl Biological Laboratories, St. Louis, and A. J. BLAIVAS, Assistant in the same; Sometime Technician in Pathological Chemical Laboratories of New York Post-Graduate Medical School and Hospital, New York City; former Assistant, Chemical Laboratory of St. Luke's Hospital, New York City. 220 pp., 85 illustrations, and four colored plates. Price \$2.50.

This monograph by Gradwohl and Blaivas gives in fullest detail the methods of blood and urine chemistry along lines of micro-chemical investigation originated by Folin and Denis, Benedict and Lewis, Myers and Fine. Attention is paid to the needs of the beginner in these analyses in that every test is fully described, the apparatus used is fully illustrated with colored plates of the standard solutions used in the colorimeter of Hellige or Duboscq. The first part of the book deals entirely with technic. The second half of the book is devoted to the interpretation of the data obtainable by blood chemical methods. This part of the work represents a careful review of the entire literature on this question, taking up the matter of diabetes, mellitus, renal diabetes, acidosis, the distinction between gout and rheumatism, and early chronic interstitial nephritis, and lastly the question of the interpretation of blood chemistry of the chronic nephritides.

Send for our 64-page catalogue of Medical and Surgical Books.

The C. V. Mosby Company
801-807 Metropolitan Building

: : :

Medical Publishers
Saint Louis, U. S. A.



Illinois Medical Journal

OFFICE OF PUBLICATION 3338 OGDEN AVENUE, CHICAGO

Vol. XXXI, No. 6

CHICAGO, JUNE, 1917

\$2.00 a Year

CONTENTS

ORIGINAL ARTICLES		PAGE		PAGE
The Address of the President-Elect. <i>E. B. Cooley, M. D., Danville</i>		367	Tic Douloureux. Some Case Reports. <i>G. Wilse Robinson, M. D., Kansas City, Mo.</i>	384
The Conquest of Cancer. <i>Alexius McGlannan, M. D., Baltimore, Md.</i>		368	Alcoholism as Observed at the Sceleth Hospital of the House of Correction, with Autopsy Findings. <i>Charles E. Sceleth, M. D., Chicago</i>	387
A Suggestion in the Treatment of Pneumonia and Other Affections Caused by the Diplococcus of Weichselbaum. <i>Edward H. Ochsner, M. D., Chicago</i>		371	Some Experiences with Radium. <i>C. W. Hanford, M. D., Chicago</i>	389
The Role of Syphilis in Internal Medicine. <i>Aldred S. Warthin, M. D., Ann Arbor, Mich.</i>		373	Arteriosclerosis and Its Relation to Mental Diseases. <i>Edward F. Leonard, M. D., Chicago</i>	393
Medical Legislation in Illinois. <i>C. St. Clair Drake, M. D., Springfield</i>		379	Report of a Case of Folie à Deux. <i>S. N. Clark, M. D., Kankakee, Ill.</i>	395

(Continued on page 32)

Entered as Second-Class Matter August 28, 1913, at the Post Office, Chicago, Illinois, under the Act of March 3, 1879.

Graves' Gynecology

TWO PRINTINGS
IN FIVE MONTHS

The work presents gynecology along new lines. An entire section is devoted exclusively to the *physiology* of the pelvic organs and to *correlated gynecology*—the relationship of gynecology to organs of *internal secretion*, breast, skin, organs of sense, digestion and respiration, blood, circulatory apparatus, abdominal organs, nervous system, bones, and joints. A special section is devoted to *enteroptosis*, intestinal bands, and movable kidney.

The second portion of the book is devoted to special gynecologic diseases, and is arranged particularly for the convenience of medical students. The first two parts (*covering 500 pages*) are entirely *non-surgical*, giving only drug and mechanical therapy and material invaluable to the general practitioner. The third part is exclusively a treatise on *surgical gynecology*, and includes profusely illustrated descriptions of those gynecologic operations that to the author seem most feasible. Microscopic pathology is presented almost entirely by drawings, with full legends made from sections from the author's collection of pathologic specimens. The book is illustrated with some 300 half-tones and line-drawings, made by the author, and by some 125 microscopic drawings. Many of the illustrations are in colors.

Large octavo of 770 pages, with 425 original illustrations, many in colors. By WILLIAM P. GRAVES, M. D., Professor of Gynecology at Harvard Medical School. Cloth, \$7.00 net; Half Morocco, \$8.50 net.

W. B. SAUNDERS COMPANY,

Philadelphia and London

This Issue, 6,550 Copies

Horlick's the Original Malted Milk

This is the pack-
age. Others are
substitutes.



Palatable, agree-
able and beneficial
to infant, invalid
and convalescent.

Horlick's Malted Milk Co., Racine, Wis.

CLINICAL LABORATORY ANALYSES

For your own reputation and the health
of your patients **Absolute Accuracy** in
laboratory analyses are prerequisites.

Quick Service must accompany such work.

**We Have Built Our Reputation and a Big Business on These
Ask Your Fellow Practitioners**

Accurate analyses of all secretions, excretions and body fluids

Wassermann Test-Tissue Diagnoses-Autogenous Vaccines

**LABORATORY OF
PATHOLOGY AND BACTERIOLOGY**

Dr. Maximilian Herzog

Dr. Meyer D. Moledetzky

The Eleventh (11th) Floor

Marshall Field & CO. Annex Building

Suite 1130—25 E. Washington St.

CHICAGO

Two Telephones: Randolph 6552-6553

Stanolind

Trade Mark Reg. U. S. Pat. Off.

Liquid Paraffin

(Medium Heavy)

Tasteless — Odorless — Colorless

In Treating Hemorrhoids

STANOLIND Liquid Paraffin, used regularly, very generally relieves hemorrhoids and fissure, even when of some years' standing.

Since these morbid conditions are usually the result of constipation, and are aggravated by straining, Stanolind Liquid Paraffin aids by rendering the intestinal contents less adhesive, by allaying irritation and thus by permitting the diseased tissues to become healed.

Where a contraindication for operative treatment exists, the use of Stanolind Liquid Paraffin in these conditions will frequently give relief from distressing symptoms and may even permit the parts to be restored to a condition where operative procedure may be postponed.

The *special advantage* of Stanolind Liquid Paraffin lies in the fact that its beneficial effects are not diminished by continual use, as is the case with almost any other laxative.

Stanolind Liquid Paraffin acts by lubrication and by adding bulk to the indigestible intestinal residue.

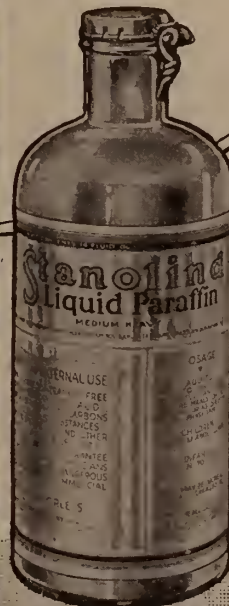
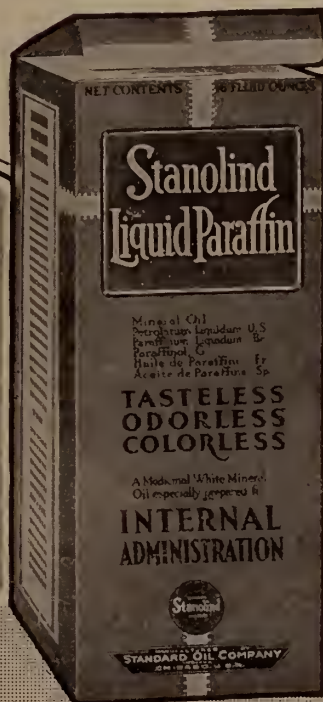
A trial quantity with informative booklet will be sent on request.

Standard Oil Company

(Indiana)

72 West Adams Street
Chicago, U. S. A.

75



An Efficient Sugar for Infant Feeding

means maximum tolerance, assimilability, and gain in weight with minimum digestive disturbances and diarrhoea for the infant. This is why nearly every pediatricist prescribes

MEAD'S DEXTRI-MALTOSE

(MALT SUGAR)

in feeding formulae for infants' diet

Let us send you samples and literature fully describing the simplicity of using Mead's Dextri-Maltose in any milk mixture in the same proportion as milk or cane sugar, but with better results.

MEAD JOHNSON & CO., EVANSVILLE, IND.

There are many grades of crude drugs offered for sale on the drug market

But—

There is only one "best"

It takes the best grade of crude drug, the highest grade of workmanship, together with the most accurate and "time-tried" methods to make



PITMAN-MOORE COMPANY, Chemists
INDIANAPOLIS, INDIANA

Hoyt's Gum Gluten DIABETIC FOODS

Supplies the much needed variety to be used in place of the forbidden wheat products.

You will find from our analyses that you can regulate your patient's diet to your entire satisfaction by prescribing Hoyt's Gum Gluten.

Send for analyses, Starch
Restricted Diet, etc.

The Pure Gluten Food Company
90 West Broadway NEW YORK CITY

Clinical Experience Shows

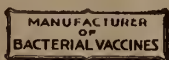
That the early administration of Sherman's Bacterial Vaccines will reduce the average course of acute infections like Pneumonia, Broncho-pneumonia, Sepsis, Erysipelas, Mastoiditis, Rheumatic Fever, Colds, Bronchitis, Whooping Cough, etc., to less than one-third the usual course of such infectious diseases, with a proportionate reduction of the mortality rate.

Not opinions, but clinical facts confirm this contention.

Bacterial Vaccines are also efficient therapeutic agents in sub-acute and chronic infections.

Sherman's Bacterial Vaccines are marketed in standardized suspensions.

Write for literature.



G.H. SHERMAN, M.D.
Detroit, Mich.
U.S.A.



Bran Food

**Made a Perpetual
Delight**

The usual bran food, as you know, lacks palatability.

Pettijohn's is soft, rolled wheat, which everybody likes. Or white flour mixed with bran.

The bran is in flake form, to make it doubly efficient. It is hidden in a wheat food, of which it forms but 25 per cent.

So Pettijohn's foods, in any form, are welcome. They are natural foods, of which folks never tire.

And the various ways of serving make it easy to establish the bran habit.

These are now the favorite bran foods, and we think they always will be.

Pettijohn's

Rolled Wheat with Bran Flakes

Soft, flavory wheat rolled into luscious flakes, hiding 25 per cent of unground bran. A famous breakfast dainty.

Pettijohn's Flour is 75 per cent fine patent flour mixed with 25 per cent tender bran flakes. To be used like Graham flour in any recipe; but better, because the bran is unground.

The Quaker Oats Company
Chicago

(1591)

ELIXIR MALTOPEPSINE

Corrective in Gastro-Intestinal Disorders
Unsurpassed as an Adjuvant and Vehicle
Free Samples to the Profession

THE TILDEN COMPANY, Manufacturing Pharmacists and Chemists
NEW LEBANON, N. Y. ST. LOUIS, MO.



DOCTOR: It is our purpose to give to you on your orders, the best pharmaceuticals that the highest grade of crude drugs, pure chemicals and skilled workmanship, under experienced supervision, can produce.

When our man calls upon you, give him a few moments of your time. He will tell you more about what we are trying to do.

G. D. SEARLE & CO. Mfrs. of Fine Pharmaceuticals and Hypodermic Tablets
215-217-219 W. Ohio St. CHICAGO Telephone North 1704

Maltose and Dextrins

in the proportions as found in

Mellin's Food

may be employed successfully as the carbohydrates

In the feeding of normal infants,
In the adjustment of the diet to overcome constipation,
In conditions where a gain in weight is especially desired,
In the feeding of marasmic infants—and
As a temporary diet in diarrhea.

In other words,—proportions of Maltose and Dextrins that
are adapted to the sick infant as well as the baby
in health are present in Mellin's Food.

MELLIN'S FOOD COMPANY,

BOSTON, MASS.

DO YOU KNOW ABOUT PARRESINE?

The Hot-Wax Dressing for Burns



Since the introduction of Parresine (Abbott) many splendid reports have been received from prominent surgeons and physicians who have used this product successfully.

Under the Parresine-Chlorazene treatment the intense pain of a severe burn is promptly relieved and beneath the wax-like layer of Parresine, which is painted with a camel's hair brush or sprayed hot from an atomizer on the wounded surface, new skin grows with unusual rapidity. The danger of scarring and contracture is greatly lessened.

Chlorazene, Dakin's new antiseptic, should be used daily, in all cases, to render the wounded surface aseptic. Chlorazene is a powerful antiseptic, yet virtually non-toxic and non-caustic.

PACKAGES AND PRICES

Parresine is offered to the medical profession at \$1.25 per pound postpaid. Usual discounts for quantity-orders and to the trade. One full-size half-pound cake, with directions, will be sent to any inquiring physician or pharmacist, on receipt of 75 cents. Chlorazene—Price, 60 cents per 100 tablets; 55 cents for Hospital Package No. 1—making 4 gallons of a 0.25 percent solution.

Correspondence with hospitals and large industrial users is requested. Full directions for use accompany every package of Parresine. Literature on request.

Both Parresine and Chlorazene have been passed by the Council of Pharmacy and Chemistry of the American Medical Association, and supplies of both have been ordered by the United States Navy to be placed on every ship.

THE ABBOTT LABORATORIES CHICAGO—NEW YORK

SEATTLE

SAN FRANCISCO

LOS ANGELES

TORONTO

BOMBAY

The Standard Laboratories

MANUFACTURING PHARMACISTS

QUALITY, SERVICE and PRICE of drugs are necessary to success in the practice of medicine. Our products are manufactured from the purest drugs and chemicals obtainable, under the most skillful supervision, and the service is prompt. Our prices are the lowest consistent with quality.

YOUR ORDERS SOLICITED

2626-2628 Shields Avenue - CHICAGO, ILL.

Phone Calumet 6090

We are pleased to announce to the Medical
Profession the introduction of a

SMALL SIZE (6 oz.)

Gray's Glycerine Tonic Comp.

(FORMULA DR. JOHN P. GRAY.)

The most important reasons for this new departure are briefly:

1. A convenient size for Rx.
2. To meet the conditions occasioned
by the "high cost of living."
3. To insure proper filling of your
prescriptions, and as a guard against
Substitution.

The regular 16 oz. size will be continued as heretofore.
We trust this innovation will be as cordially received by
Physicians as has the 16 oz. size for the past 25 years.

THE PURDUE FREDERICK COMPANY,

135 CHRISTOPHER STREET, N. Y. CITY.

In the Treatment of

Cystitis—Urethritis Pyelitis—Prostatitis—Bacilluria

HELMITOL

ACTS AS

An Efficient Urinary Antiseptic

Agreeable of Administration—Generally Well-Tolerated
by the Gastro-Intestinal and Urinary Tract.

Conveniently taken in Tablets, which readily dissolve.

Supplied in 5 gr. tablets, bottles of 25 and 100, and in powder in ounces.

Samples and Literature supplied by

THE BAYER COMPANY, Inc.
117 Hudson St., New York, N. Y.

Chicago Pasteur Institute

26th YEAR

812 NORTH DEARBORN STREET

CHICAGO

FOR THE PREVENTIVE TREATMENT OF HYDROPHOBIA


ANTONIO LAGORIO, M.D., LL.D., Medical Director

G. B. BRUNO, M.D., Associate Director

FRANK A. LAGORIO, M.D., Associate Director

Announcement—When patients are unable to come to Institute, we can furnish physicians our course of Pasteur treatment by mail, in the State of Illinois. Telephone Superior 973.

N. B.—We have no branches and the use of our name is unauthorized.



35 years

has *Tongaline* been successfully prescribed as an Anti-Rheumatic and Anti-Neuralgic. Free from the injurious effects on the stomach, or other disturbances produced by Salicylic Acid made from coal tar.

ALL THE SALICYLIC ACID IN *TONGALINE* IS MADE FROM THE NATURAL OIL

Tongaline Liquid 4-oz. Bottle, 50c 8-oz. Bottle, \$1.00 5-pint Bottle, \$5.00	Tongaline Tablets Tongaline and Lithia Tablets Tongaline and Quinine Tablets	Box, 50 Tablets, 50c Box, 100 Tablets, \$1.00
--	--	--

SAMPLES ON APPLICATION MELLIER DRUG COMPANY, Saint Louis

Swan-Myers Company

BACTERIAL VACCINES

Manufacturers of a

Complete Line of Stock Combinations

Supplied in Handy Packages as follows :

6—1 Mil Rubber Stoppered Vials	-	-	-	-	-	\$1.25
6 Mil Bulk Package	-	-	-	-	-	1.00
20 Mil Bulk Package	-	-	-	-	-	3.00

Write for Complete List and Literature

WE ALSO SOLICIT YOUR CLINICAL WORK

Autogenous Vaccines, \$5.00

Wassermanns, \$5.00

INDIANAPOLIS

INDIANA, U. S. A.

ILLINOIS STATE MEDICAL SOCIETY

SECTION OFFICERS AND COMMITTEES

SECTION ON SURGERY	
John S. Nagel, Chairman.....	Chicago
H. A. Millard, Secretary.....	Minonk
SECTION ON MEDICINE	
C. Martin Wood, Chairman.....	Decatur
S. R. Slaymaker, Secretary.....	Chicago
SECRETARIES' CONFERENCE	
Flint Bondurant, President.....	Cairo
F. C. Gale, Secretary.....	
SECTION ON PUBLIC HEALTH AND HYGIENE	
Grace Campbell, Chairman.....	Chicago
W. E. Park, Secretary.....	Rockford
SECTION ON EYE, EAR, NOSE AND THROAT	
J. Sheldon Clark, Chairman.....	Freeport
Wesley H. Peck, Secretary.....	Chicago

COUNTY SOCIETIES

This list is corrected in accordance with the best information obtainable at the date of going to press. County Secretaries are requested to notify The Journal of any changes or errors.

Adams County	
J. L. Aleshire, Pres.....	Plainville
Elizabeth B. Ball, Secy.....	Quincy
Alexander County	
J. W. Dunn, Pres.....	Cairo
R. E. Barrows, Secy.-Treas.....	Cairo
Bond County	
W. T. Easley, Pres.....	Greenville
J. C. Wilson, Secy.....	Greenville
Boone County	
Geo. Markley, Pres.....	Poplar Grove
H. E. Delavergne, Secy.....	Belvidere
Brown County	
D. R. Peters, Pres.....	Mt. Sterling
E. C. Allworth, Secy.-Treas.....	Mt. Sterling
Bureau County	
C. C. Barrett, Pres.....	Princeton
M. A. Nix, Secy.....	Princeton
Calhoun County	
W. A. Skeel, Pres.....	Kampsville
J. H. Peisker, Secy.....	Hardin
Carroll County	
W. W. McGrath, Pres.....	Savanna
R. B. Rice, Secy.-Treas.....	Mt. Carroll
Cass County	
C. E. Soule, Pres.....	Beardstown
W. R. Blackburn, Secy.....	Virginia
Champaign County	
J. H. Finch, Pres.....	Champaign
John C. Dillenbach, Secy.....	Champaign
Christian County	
R. C. Danford, Pres.....	Pana
S. B. Herdman, Secy.....	Taylorville
Clark County	
S. W. Weir, Pres.....	West Union
S. C. Bradley, Secy.....	Marshall
Clay County	
C. E. Duncan, Pres.....	Flora
R. D. Finch, Secy.....	Flora
Clinton County	
J. A. Bauer, Pres.....	Germantown
J. Q. Roane, Secy.....	Carlyle
Coles-Cumberland County	
Wm. Smith, Pres.....	Toledo
R. H. Craig, Secy.-Treas.....	Charleston
Cook County	
A. Augustus O'Neill, Pres.....	Chicago
J. V. Fowler, Secy.....	Chicago
Crawford County	
A. G. Brooks, Pres.....	Stoy
C. E. Price, Secy.....	Robinson
DeKalb County	
Paul E. N. Greeley, Pres.....	Waterman
J. B. Hagey, Secy.....	DeKalb
De Witt County	
J. M. Wilcox, Pres.....	Clinton
S. L. Thorpe, Secy.-Treas.....	Clinton
Douglas County	
Floyd C. Phillips, Pres.....	Arthur
Walter C. Blaine, Secy.....	Tuscola
Du Page County	
(Affiliated with Cook County)	
Edgar County	
Wm. A. Buchanan, Pres.....	Paris
George H. Hunt, Secy.....	Paris
Edwards County	
W. E. Buxton, Pres.....	West Salem
R. L. Moter, Secy.....	Albion
Effingham County	
Frank W. Goodell, Pres.....	Effingham
F. Buckmaster, Secy.....	Effingham
Fayette County	
A. E. Greer, Pres.....	Brownstown
Mark Greer, Secy.....	Vandalia
Franklin County	
Wm. H. Smith, Pres.....	Benton
Edgar Austin, Secy.....	Benton
Fulton County	
J. C. Simmons, Pres.....	Canton
B. E. Ray, Secy.-Treas.....	Cuba
Gallatin County	
J. W. Bowling, Pres.....	Shawneetown
A. B. Capel, Secy.....	Shawneetown
Greene County	
O. L. Edwards, Pres.....	Roodhouse
L. O. Frech, Secy.-Treas.....	White Hall
Grundy County	
Roscoe Whitman, Pres.....	Morris
F. C. Bowker, Secy.....	Morris
Hamilton County	
E. S. Hall, Pres.....	McLeansboro
W. L. Cottingham, Secy.....	Paxton
Hancock County	
Blair Kelley, Pres.....	Ferris
S. M. Parr, Secy.....	Carthage
Hardin County	
W. J. J. Paris, Pres.....	Rosiclare
F. A. Jones, Secy.....	Rosiclare
Henderson County	
W. J. Emerson, Pres.....	Carman
J. P. Riggs, Secy.....	Media
Henry County	
Chas. F. Young, Pres.....	Geneseo
P. J. McDermott, Secy.....	Kewanee
Iroquois-Ford District	
O. O. Hall, Pres.....	Milford
W. L. Cottingham, Secy.....	Paxton
Jackson County	
W. A. Brandon, Pres.....	Carbondale
H. G. Horstman, Secy.....	Murphysboro
Jasper County	
John Hamilton, Pres.....	Bogota
James P. Prestley, Secy.-Treas.....	Newton
Jefferson County	
E. E. Edmondson, Pres.....	Mt. Vernon
Andy Hall, Secy.....	Mt. Vernon
Jersey County	
H. R. Bohannon, Pres.....	Jerseyville
H. F. Threkeld, Secy.....	Jerseyville
Jo Daviess County	
A. T. Nadig, Pres.....	Elizabeth
T. J. Stafford, Secy.....	Stockton
Johnson County	
C. D. Nobles, Pres.....	Buncombe
H. W. Walker, Secy.....	Grantsburg
Kane County	
A. E. Diller, Pres.....	Aurora
L. J. Hughes, Secy.-Treas.....	Elgin
Kankakee County	
C. W. Weiger, Pres.....	Kankakee
E. S. Hamilton, Secy.-Treas.....	Kankakee
Kendall County	
R. A. Schaefer, Pres.....	Plano
Robt. McClland, Secy.....	Yorkville
Knox County	
A. C. Keener, Pres.....	Altoona
G. S. Bower, Secy.....	Galesburg
Lake County	
John P. O'Neil, Pres.....	Highland Park
C. S. Ambrose, Secy.-Treas.....	Waukegan
La Salle County	
R. C. Fullenweider, Pres.....	La Salle
E. E. Perisho, Secy.....	Streator

(Continued on page 26)

OIL OF THUJA COMPOUND

(N. B. & CO.)

Active Constituents: Oil of Thuja, Oil of Cajuput, Oil Sesame, Oil Persica

Oil of Thuja has obtained considerable reputation as an absorbent of adenoid or lymphoid tissue, and in the treatment of hypertrophies of the mucous membrane of the nasal cavity and nasopharynx, especially in children.

Oil of Thuja Compound N. B. & CO. combines oil of Thuja with other oils having a similar therapeutic action, the preparation being non-irritant and non-toxic and designed to be applied directly to the parts affected by means of a nasal or post-nasal spray or, in the case of young children, by dropping it into the nostrils while the patient is sleeping or in a reclining position. Literature furnished to physicians upon request.

NELSON, BAKER & CO. Detroit Mich., Kansas City, Mo.

AREND-ADAMICK DOUBLE KUMYSS

AN IDEAL FOOD for all conditions of enfeebled digestive power from any cause, malnutrition in infants or the aged—a sustaining diet during the course of acute infectious diseases and gastro-intestinal disorders
EASILY ASSIMILATED and contains the elements essential for the nourishment of the organism.
A VALUABLE NUTRIENT in Typhoid, Enteritis, Marasmus, Acute fevers, Gastric Ulcer, Anemia, Vomiting of Pregnancy, Asthenic fevers and during Convalescence.

Its taste is pleasantly acidulous—its enticing flavor is unusually acceptable to the capricious appetite of the sick—it may be used for days as an exclusive diet.

Booklet giving instructions and interesting clinical report, also price list, free on request.

A. AREND DRUG COMPANY

Manufacturing Chemists

182 West Madison Street, Chicago

A Good Name

—be it “professional” or “trade”—
never “just happens.”

The sterling reputations of America's medical men, from the leaders to the rank-and-file, *were built*, step by step, by hard study and harder work.

That's the way *our* name came to stand for “Quality;” and we've been more than a half-century “building” it.

SHARP & DOHME

Since 1860

“QUALITY PRODUCTS”



The Improved Model Snook Interrupterless Roentgen Generator—the latest product of the Victor factory.

Incorporated in its design are several important improvements—the result of “moving forward with the times.”

The capacity has been materially increased, but the price remains the same:

220 Volt, direct current	. . . . .	\$1550.00
220 Volt, 60 cycle alternating current	. . . . .	\$1450.00

Complete data is given in the new “Model Snook Bulletin.”

VICTOR ELECTRIC CORPORATION

Manufacturers of a Complete Line of Roentgen and Electro-Medical Apparatus

CHICAGO . . . NEW YORK . . . CAMBRIDGE

Address all inquiries to 236 S. Robey St., Chicago

WILSTA EYE GLASS MOUNTINGS

Manufactured Exclusively for

THE WHITE-HAINES OPTICAL CO.

The WILSTA mounting is the best fingerpiece mounting on the market. Gives perfect satisfaction, holds the lens perfectly and just where you want them.

Send your R_x work to THE WHITE-HAINES OPTICAL CO., where it shall have the attention of the best skilled lens grinders in the country.

THE WHITE-HAINES OPTICAL CO.

Columbus, Ohio.

Indianapolis, Ind.

Springfield, Ill.

Chicago College of Medicine and Surgery

**MEDICAL
DEPARTMENT OF
VALPARAISO
UNIVERSITY**



Main College Building and Willard Hospital

**702-706
SO. LINCOLN ST.
CHICAGO, ILL.**

This College has an enrollment of 500 students. The Laboratory and Hospital facilities are abundant. The Faculty consists of men who have distinguished themselves as medical educators. The College is not burdened with debts and is therefore able to expend all of its income upon the courses of instruction. The Calendar year is divided into three semesters of four months each. The Fall semester begins on the last Tuesday in September. The Winter semester begins on the first Monday in February. The Summer semester begins on the first Monday in May.

For catalogue or further information address

J. NEWTON ROE, Secretary

706 S. Lincoln St., Chicago, Ill.

Chicago Eye, Ear, Nose and Throat College

**A Post-Graduate School for Prac-
titioners of Medicine**

**235 W. Washington Street
Chicago, Ill.**

Catalogue on Application

Chicago Maternity Hospital and Training School for Nurses

**ACCOMMODATES 25 PATIENTS
RATES: \$10.00 to \$25.00 PER WEEK**

Well infants cared for in nursery for \$5.00 per week.
Training School for Obstetrical and Infants' nurses.

Address

EFFA V. DAVIS, M.D., 2314 N. Clark St., Chicago

Home Training In Nursing



We offer a thorough extension course to beginners and also to practical nurses wishing to perfect themselves in the theory and science of nursing.

There is in every community a demand for competent nurses — women physically qualified and possessing natural ability, who for various reasons cannot leave home to get their training. Through the aid of the very thorough system of instruction used by this school for a period of sixteen years, we have trained hundreds of women who have "made good" as practical nurses. In fact our graduates adapt themselves to the inconveniences of private nursing more readily than the hospital-trained nurse. They are loyal to the home doctor, whose co-operation has made their success possible.

Reputable physicians are invited to investigate our methods and co-operate with us by sending the names of earnest women who in their estimation would make desirable applicants.

Tuition fees very reasonable—small payment plan. Write for the Sixteenth Annual Announcement. Address

**Karen Esmann, Registrar
CHICAGO SCHOOL OF NURSING
116 S. Michigan Blvd., Chicago, Ill.**

Loyola University

School of Medicine

BENNETT MEDICAL COLLEGE

OFFERS a Five Year Course in Modern Scientific Medicine leading to the M. D. Degree, and a Six Year Course leading to the B. Sc. M. D. Degree. ¶ Individual instructions in large well equipped laboratories, and in fifteen metropolitan hospitals and dispensaries. ¶ Internships available for all graduates. ¶ Many opportunities in city for self help.

WRITE FOR CATALOGUE, HOSPITAL FOLDER
AND "SELF-HELP FACTS"

1360 West Fulton Street

CHICAGO

Preparedness is the Slogan of the Day. We are Prepared

to furnish promptly to the specialist in every branch of surgery the correct instrument and apparatus which are of such great assistance in the performance of the Surgeon's work



V. MUELLER & CO., Makers of Surgeons' instruments, Hospital and Office Equipment 1771-1781 Ogden Ave., CHICAGO

INDEX TO ADVERTISERS

Abbott Laboratories.....	7
A. Arend Drug Co.....	27
Bayer Company.....	8
Bellevue Sanitarium.....	22
Beverly Farm School.....	24
Carrick, G. W., Co.....	15
Chicago College of Medicine and Surgery.....	29
Chicago Eye, Nose & Throat College.....	29
Chicago Fresh Air Hospital.....	20
Chicago Laboratory.....	14
Chicago Maternity Hospital.....	29
Chicago Pasteur Institute.....	9
Chicago School of Nursing.....	29
Cincinnati Sanitarium.....	24
College of Medicine, Univ. of Ill.....	34
Cocroft, Susanna.....	2
Columbus Medical Laboratory.....	12
Crittenton, Chas. N., Co.....	2
Edward Sanatorium.....	21
Fellows Medical Mfg. Co.....	19
Fletcher's Sanatorium.....	23
Gradwohl Biological Laboratories.....	12
Horlick's Malted Milk Co.....	2
Illinois Nurses Registry.....	26
Kenilworth Sanitarium.....	22
Klipstein & Company.....	15
Laboratory of Pathology and Bacteriology.....	2
Lambert Pharmaceutical Company.....	13
Lederle Antitoxin Laboratory.....	35
Loyola University School of Medicine.....	11, 30
McIntosh, John, Co.....	11
Medical Protective Co.....	11
Mead, Johnson & Co.....	4
Mellier Drug Co.....	9
Mennen.....	17
Mellin's Food Co.....	6

Milwaukee Sanitarium.....	23
McLain Orthopedic Sanitarium.....	22
Mueller & Co., V.....	30
Murphey Sanatorium.....	19
Nelson, Baker & Co.....	27
Norbury Sanitarium.....	21
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Parke, Davis & Co.....	18
Pennoyer Sanitarium.....	6
Peoria Mud Baths.....	24
Peoria Sanatorium.....	25
Petty & Wallace's Sanitarium.....	25
Phillips Co., Chas. H.....	32
Physicians' Radium Association.....	13
Pine Sanatorium.....	34
Pitman-Moore Co.....	4
Pottenger Sanatorium.....	20
Purdue, Frederick, Co.....	8
Pure Gluten Food Co.....	5
Quaker Oats Co.....	5, 33
Radium Institute.....	36
Ransom Sanitarium.....	23
Saunders Co., W. B.....	front cover
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Sherman, G. H., M. D.....	5
Standard Laboratories.....	7
Standard Oil Co.....	3
Storm, Katherine L., M. D.....	11
Swan-Myers Co.....	9
Tilden Co., The.....	6
Victor Electric Co.....	28
Wander, Dr. A.....	16
Waukesha Moor (Mud) Bath Co.....	24
Waukesha Springs Sanitarium.....	22
Weirick's Sanitarium.....	25
White-Haines Optical Co.....	28

BUYER'S INDEX

ABDOMINAL SUPPORTERS

Storm, Katherine L., M. D.....	11
--------------------------------	----

AUTOMOBILES, ETC.

Standard Oil Co.....	3
----------------------	---

FOOD

Arend-Adamick Koumyss.....	27
Horlick's Malted Milk Co.....	2
Mead, Johnson & Co.....	6
Mellin's Food Co.....	6
Pure Gluten Food Co.....	5
Quaker Oats.....	5, 33
Wander's Ovaltine.....	16

HOSPITAL

Chicago Fresh Air Hospital.....	20
Chicago Maternity Hospital.....	29

INVESTMENTS AND INSURANCE

Medical Protective Co.....	11
----------------------------	----

LABORATORY

Abbott Laboratories.....	7
Chicago Laboratory.....	14
Columbus Medical Laboratory.....	12
Gradwohl Biological Laboratories.....	12
Laboratory of Pathology and Bacteriology.....	2
Standard Laboratories.....	7
Swan-Myers Co.....	16

MEDICAL BOOK PUBLISHERS

Saunders Co., W. B.....	front cover
-------------------------	-------------

MEDICAL SCHOOLS

Chicago College of Medicine and Surgery.....	29
Chicago Eye, Ear, Nose and Throat College.....	29
College of Medicine, Univ. of Ill.....	34
Loyola University School of Medicine.....	11, 30

MUD BATHS

Peoria Mud Baths.....	24
Waukesha Moor (Mud) Bath Co.....	24

NURSES

Chicago School of Nursing.....	29
Illinois Nurses Registry.....	26

PHARMACEUTICALS

Abbott Laboratories.....	7
Bayer Company.....	8
Carrick, G. W., Co.....	15
Crittenton, Chas. N., Co.....	2
Fellows Medical Mfg. Co.....	19
Kenilworth Sanitarium.....	22
Klipstein & Company.....	15
Lederle Antitoxin Laboratory.....	35
Lambert Pharmacal Company.....	13
Mead, Johnson & Co.....	4
Mellier Drug Co.....	9
Mennen.....	17
Nelson, Baker & Co.....	27
Parke, Davis & Co.....	18
Phillips Co., Chas. H.....	32
Pitman-Moore Co.....	4
Purdue, Frederick, Co.....	8
Sherman's Bacterins.....	5
Searle & Co., G. D.....	6
Sharp & Dohme.....	27
Swan-Myers Co.....	9
Tilden Co., The.....	6

SANATORIA & SANITARIA

Bellevue Sanitarium.....	22
Cincinnati Sanitarium.....	24
Edward Sanatorium.....	21
Fletcher's Sanatorium.....	23
Kenilworth Sanitarium.....	22
Norbury Sanitarium.....	21
McLain Orthopedic Sanitarium.....	22
Milwaukee Sanitarium.....	23
Murphey Sanatorium.....	19
Oconomowoc Health Resort.....	21
Ottawa Tuberculosis Colony.....	20
Pennoyer Sanitarium.....	6
Peoria Sanitarium.....	25
Petty & Wallace's Sanitarium.....	25
Pine Sanatorium.....	34
Pottenger Sanatorium.....	20
Radium Institute.....	36
Ransom Sanitarium.....	23
Waukesha Springs Sanitarium.....	22
Weirick's Sanitarium.....	25

SURGICAL INSTRUMENTS

McIntosh, John, Co.....	11
Mueller & Co., V.....	30
Victor Electric Co.....	28

IN PLACE OF OTHER ALKALIES USE

Phillips' Milk of Magnesia

"THE PERFECT ANTACID"

For Correcting Hyperacid Conditions—Local or Systemic. Vehicle for Salicylates, Iodides, Balsams, Etc.

Of Advantage in Neutralizing the Acid of Cows' Milk for Infant and Invalid feeding.

Phillips' Phospho-Muriate of Quinine Compound NON-ALCOHOLIC TONIC AND RECONSTRUCTIVE

With Marked Beneficial Action Upon the Nervous System. To be relied Upon Where a Deficiency of the Phosphates is Evident.

THE CHAS. H. PHILLIPS CHEMICAL CO.
NEW YORK LONDON

DON'T FORGET

to patronize our advertisers, and to mention the fact that you saw their advertisement in the

ILLINOIS MEDICAL JOURNAL.

DO YOU KNOW OF ANY CONTESTED

insurance claims? Our bureau renders its clients expert service in securing policyholders and beneficiaries holding health and accident policies satisfactory adjustment of disputed claims. Our work is conducted through the medical profession. Complete details regarding our system sent upon request to Dr. W. E. Magruder, Med. Dir., Nat. Investigation Bureau, 924 Madison Ave., Baltimore, Md. KK

CONTENTS—Continued

ORIGINAL ARTICLES—Continued.

The Present Status of Epidemic Poliomyelitis. Archibald L. Hoyne, M. D., Chicago.....	401
Chronic Appendicitis. George D. J. Griffin, M. D., Chicago	403
Antiseptics and Germicides—Their Uses and Abuses. S. J. Russell, M. D., Chicago.....	405
Safety First in Anesthesia. Thomas L. Dagg, M. D., Chicago	407

EDITORIAL

The Bloomington Meeting.....	413
Resolutions Passed by the House of Delegates.....	414
Status of Pending Legislation.....	414
Eight-Hour Bill.....	415
Chicago Medical Society Election.....	415
Moving the Clock Ahead.....	416
Can You Beat It?.....	416
American Association of Industrial Physicians and Surgeons	417

PUBLIC HEALTH

Tornado at Mattoon and Charleston.....	417
State Relief for Storm Sufferers.....	418
Appropriations for the State Department of Public Health	418

CORRESPONDENCE.

Criticism of Report on Health Insurance and Answer of Committee	419
---	-----

SOCIETY PROCEEDINGS.

Cook County:	
Chicago Medical Society.....	424
Chicago Ophthalmological Society.....	426
Hancock County.....	428
Henderson County.....	428
Lake County.....	428
Madison County.....	429
Montgomery County.....	429
Pike County.....	429
Wabash County.....	430
Personals	430
News Items.....	431
Marriages	432
Deaths	432
Book Notices.....	432

DID YOU KNOW THAT

A good water supply in the spring may save an undertaker's bill in the fall?

It's the spring fly which makes the summer pest?

A mosquito breeding pool may mean malaria later on?

Spring gardening has lengthened many lives?

Fresh air is the best tonic?

Today is the best time to begin to build for health?

I AM SORRY I
did NOT advertise

— *in the* —

ILLINOIS
MEDICAL
JOURNAL



Doctors!

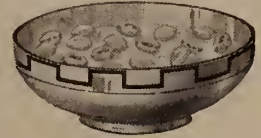
If you see the "adv."
in the Journal the
advertiser is reliable.

Buy from our
Advertisers

and make your Jour-
nal the best paying
as well as the best
reading Journal.



Puffed Wheat
in Milk



Bubble Grains

Here are bubble-like grains of wheat and rice, puffed to eight times normal size.

They are puffed by Prof. Anderson's process, where every food cell is exploded. Over 100 million steam explosions occur in every kernel.

The purpose is easy, complete digestion. The result is food confections.

These airy titbits, flaky, thin and toasted, are delightful foods.

And they are whole grains made wholly digestible. Every atom feeds. No other cooking process breaks up half so many granules.

You will find no other whole-grain food which so meets these requirements.

The Quaker Oats Company

Chicago

(1589)

**Puffed
Wheat**

**Puffed
Rice**

and Corn Puffs

Each 15c Except in Far West

READER!

are you buying your supplies from our advertisers?

Our advertising pages are your property as a member of the Illinois State Medical Society.

Advertisers will pay for space in proportion as you buy from them, and thus make the space valuable to them.

Order now, and write that you saw the "ad" in the JOURNAL.

WANTED, FOR SALE, AND RENT DEPARTMENT

Advertisements under this heading cost one dollar for four lines or less, and 25 cents for each additional line, each insertion. Payable in advance. Line holds eight ordinary words.

DRUG AND LIQUOR HABITS CURED. No suffering or danger. New treatment without delirium. Absolutely satisfactory results. Modern Sanitarium, established eighteen years. Close personal attention. RALPH SANITARIUM, 529 Highland Ave., Kansas City, Mo.

THE COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS



Minimum admission requirements to the Freshman year, fifteen units of work from an accredited high school and in addition two years in a recognised university or college involving at least one year in college physics, biology, chemistry and six college hours in French or German. For course of Medical study, four years are required. Eligible students will receive the degree of B. S. at the completion of the Sophomore year. ¶ Well equipped laboratories and good hospital facilities.

¶ Excellent location in the heart of Chicago's great medical center. ¶ Collegiate year begins September 28th, 1916. ¶ For full information concerning course of study, fees, etc., address Secretary, Box 51 COLLEGE OF MEDICINE of the UNIVERSITY OF ILLINOIS Congress and Honore Streets Chicago, Illinois



Resident Physician
James H. Appleman, M. D.
CONSULTANTS
Surgeon
Gustav M. Blech, M. D.
104 South Michigan Ave.
Genito-Urinary
Frank Wieland, M. D.
122 South Michigan Ave.
Internist
Walter B. Metcalf, M. D.
25 East Washington St.
Electro-Therapy
Emil H. Grubbe, M. D.
130 North State Street
Throat, Nose and Ear
Richard H. Street, M. D.
25 East Washington St.
Pathologist
W. Henry Wilson, M. D.
3129 Rhodes Ave.
Oculist
Carleton A. Harkness, M. D.
29 East Madison St.

Drug and Alcoholic Addictions Treated Exclusively

Our facilities for caring for this class of patients are unsurpassed. This sanitarium is conducted along high-grade ethical lines.

Fixed charge made to patient when accepted for treatment. No extras. Time required: Alcoholism, 3-7 days; Drug Addiction, 10-20 days. No Suffering. Booklet on either subject sent free upon request.

The Pine Sanitarium

Established 1900

1919 Prairie Ave., Chicago, Illinois
Local and Long Distance Telephone, Calumet 4543

The New York Academy of Medicine

DUE IN TWO WEEKS UNLESS RENEWED.

NOT RENEWABLE AFTER 6 WEEKS

[illegible]

